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UNITED STATES.

Formaldehyd disinfection in a vacuum chamber, by P. A. Surg. E. K. Sprague, Acting Director Hygienic Laboratory, U. S. Marine-Hospital Service.

HYGIENIC LABORATORY, U. S. MARINE-HOSPITAL SERVICE,
Washington, D. C., September 18, 1899.

SIR: I have the honor to submit the following report of experiments conducted in the hygienic laboratory for the purpose of determining upon a rapid and efficient means of disinfection with formaldehyd, combined with dry heat, in a vacuum chamber:

In a report rendered September 4, 1897, upon the efficiency of the Kinyoun-Francis formaldehyd disinfector, one of the conclusions was that "in order to determine positively the quantity of formaldehyd required for complete disinfection of articles in a vacuum chamber in less than one hour further experimentation is necessary." Opportunity was not afforded for continuing the work until in the early part of the current year a disinfecting shed was erected as an adjunct to the hygienic laboratory with a complete equipment for disinfection with steam or formaldehyd.

"Hitherto most of the experiments with formaldehyd have been made with a small percentage of the gas and with a long exposure, twelve to forty-eight hours. There can be no question regarding its efficiency when thus employed, but its field of usefulness would be greatly limited were the minimum time of exposure to be twelve hours. The fact that no apparatus had been constructed on a plan such that a high percentage of gas could be secured and maintained compelled the employment of relatively small quantities. With the Kinyoun-Francis formaldehyd disinfector, manufactured by the Kensington Engine Works, Philadelphia, it is possible to make use of as high a percentage as may be desired, and the chamber being air tight, the quantity of gas is not decreased during the time of exposure."

DESCRIPTION OF APPARATUS.

This apparatus is a jacketed steam disinfecting chamber with a capacity of 1,680 liters. "To the cylinder is attached a vacuum apparatus, a formaldehyd generator, and an ammonia generator. The cylinder is also fitted with a rack in which the various articles for disinfection are placed. The formaldehyd and ammonia generators are attached at the middle of one side of the cylinder and, although distinct, are covered with a Russia-iron jacket, which would conceal their identity were it not for the fact that to each is attached a brass plate, one marked "Formalin" and the other "Ammonia." The formaldehyd generator is a copper boiler, containing a copper coil, with a capacity of 3.21 liters. The ammonia generator is of the same construction and capacity, with the exception that the copper is replaced by iron. The coils are connected with a steam boiler, and the generators communicate with the disinfecting chamber by means of small pipes which are fitted with the proper stopcocks."

METHOD OF OPERATING.

Steam is turned into the jacket until at temperature of at least 80° C. is obtained within the chamber. The articles to be disinfected are placed in the rack or car which is rolled into the chamber, the door is closed and secured, and a vacuum of 15 to 20 inches obtained. By this time, steam having been allowed to course through the coil within the generator containing the formalin mixture, there should be a pressure of 40 to 60 pounds. The heat in the chamber has been gradually increased, and the thermometer should register nearly or quite 90° C. With the above pressure and temperature, the valve between the generator and chamber is opened just enough to permit the escape of gas in sufficient quantity to cause the pressure to gradually decrease.

At the end of ten or fifteen minutes all the gas has probably been expelled and the valve may now be closed. Steam is kept slowly coursing through the jacket in order to maintain a constant temperature of 90° C., or more. A higher degree of heat, while doing no harm, does not appear to increase the efficiency of the formaldehyd, but it is certainly diminished at a lower temperature. The vacuum will usually fall seven or eight pounds, and possibly more, according to the quantity of gas entering the chamber. At the end of one-half hour the vacuum may be broken and air allowed to fill the chamber. This mixture of air and formaldehyd is then exhausted, and the ammonia generator, previously supplied with aqua ammonia, one half as much as of formalin, is operated in the same manner as already described for formaldehyd; the latter having been in a great measure removed with the air, a small quantity of ammonia will neutralize the residue. Air is again allowed to enter the chamber and the door may now be opened. It is usually found that there is a slight excess of ammonia, but not enough to cause any annoyance. Neutralization of the formaldehyd occurs very promptly, consequently only the few minutes necessary for operating is consumed by this part of the process.

PREPARATION OF FORMALIN MIXTURE.

The formalin mixture used in these experiments was prepared as follows: Formalin, 100 parts; calcium chloride, 20 parts; glycerin, 10 parts.

Commercial calcium chloride usually contains considerable water and before being weighed for the mixture was thoroughly dried by heat. It was then pulverized and mixed with the formalin. The glycerin was added last.

When the pressure in the generator had fallen to zero by the escape of all the formaldehyd, there remained a considerable quantity of a sirupy liquid resembling in odor and appearance light colored molasses. It was necessary to draw off this liquid residue after each experiment, otherwise it became thick and tarry, clogging the drainage pipe.

No estimation of the percentage of formaldehyd was made in these experiments because of the difficulty of accurately determining the quantity of gas in practical work. A definite quantity of the formalin mixture was taken for each series and, as will be explained later, the ratio existing between the amount of formalin and the capacity of the chamber may be used as a basis for calculating the quantity for a chamber of any size.

CULTURES.

The cultures employed were in each instance as nearly similar as it was possible to have them. The typhoid and diphtheria were forty-eight hours old bouillon cultures, and the anthrax was of several days growth—old enough so that spores were always present.

Small slips of sterile crash were moistened with the culture, and those to be used in the dry state were allowed to remain in a Petri dish, with the cover slightly raised, at room temperature until the moisture evaporated; those to be used wet were freshly prepared and no time given for evaporation. Each slip was then wrapped in sterile cheese cloth so that it was protected by about ten thicknesses. While the cultures were exposed under a variety of conditions, they were always prepared in the same manner. At the conclusion of each experiment they were removed, the crash slips were placed in sterile bouillon tubes and incubated at 37° C. for seven to twelve days.

It was found that while the controls always grew in twenty-four to forty-eight hours, the growth in many instances in the other tubes seemed to be inhibited so that development did not occur until the sixth or eighth day. In all the experiments with anthrax alone the tubes were incubated ten to twelve days. This particular organism was very virulent, and in cases of doubt as to the growth, mice were inoculated to decide the question.

In an unpublished series of experiments conducted at the national quarantine station, Angel Island, San Francisco, by Passed Assistant Surgeon Rosenau, he reached the conclusion that by combining dry heat and formaldehyd he obtained better results than with the gas at ordinary temperatures. The degree of heat and the quantity of formalin required for efficient work in a given space were not determined.

In order to decide these points and to complete the work begun two years ago, those experiments were undertaken. It was deemed advisable, first, to determine accurately the effect of dry heat alone upon the organisms selected, which was in reality a question of penetration, because the lowest temperature in any series, 80° C., would kill diphtheria and typhoid in less than one hour; second, to ascertain the germicidal effect of formaldehyd in large quantity at ordinary temperature, 25°–30° C.; and, third, to decide upon the most efficient combination of heat and formaldehyd. All experiments were carefully controlled by 1 to 3 tubes for each germ.

SERIES I.

Temperature 80° C.; time, one hour; no vacuum.

A. *Dried cultures.*

1. Cultures free in chamber: Typhoid, dried, no growth; diphtheria, dried, no growth; anthrax, dried, growth.
2. Cultures buried in hair pillows: Typhoid, dried, no growth; diphtheria, dried, no growth; anthrax, dried, growth.
3. Cultures buried in feather pillows: Typhoid, dried, no growth; diphtheria, dried, no growth; anthrax, dried, growth.
4. Cultures inside tightly rolled blanket: Typhoid, dried, no growth; diphtheria, dried, growth; anthrax, dried, growth.
5. Cultures buried in cotton mattress: Typhoid, dried, no growth; diphtheria, dried, growth; anthrax, dried, growth.
6. Cultures between mattresses: Typhoid, dried, no growth; diphtheria, dried, no growth; anthrax, dried, growth.

B. *Moist cultures.*

1. Cultures free in chamber: Typhoid, moist, no growth; diphtheria, moist, no growth; anthrax, moist, growth.
2. Cultures buried in hair pillow: Typhoid, moist, no growth; diphtheria, moist, no growth; anthrax, moist, growth.
3. Cultures buried in feather pillow: Typhoid, moist, no growth; diphtheria, moist, no growth; anthrax, moist, growth.
4. Cultures in rolled blanket: Typhoid, moist, growth; diphtheria, moist, no growth; anthrax, moist, growth.
5. Cultures buried in cotton mattress: Typhoid, moist, no growth; diphtheria, moist, growth; anthrax, moist, growth.
6. Cultures between mattresses: Typhoid, moist, no growth; diphtheria, moist, growth; anthrax, moist, growth.

SERIES II.

Temperature of chamber, 80° C.; time, one hour; vacuum, 15 inches.

A. *Dried cultures.*

1. Cultures free in chamber: Typhoid, dried, no growth; diphtheria, dried, growth; anthrax, dried, growth.
2. Under the succeeding conditions, as outlined in Series I: Typhoid and diphtheria were destroyed; anthrax grew in each instance.

B. *Moist cultures.*

Under all conditions typhoid and diphtheria were killed; anthrax grew.

SERIES III.

Temperature of chamber, 80° C.; time, one hour; vacuum, 15 inches; 500 c. c. water put in formaldehyd generator, which was operated in the same manner as for formalin:

A. *Dried cultures.*

1. Cultures free in chamber: Typhoid, dried, no growth; diphtheria, dried, no growth; anthrax, dried, no growth.
2. Cultures buried in hair pillow: Typhoid, dried, no growth; diphtheria, dried, no growth; anthrax, dried, growth.
3. Cultures buried in feather pillow: Typhoid, dried, no growth; diphtheria, dried, no growth; anthrax, dried, no growth.
4. Cultures in rolled blankets: Typhoid, dried, no growth; diphtheria, dried, no growth; anthrax, dried, growth.
5. Cultures buried in cotton mattress: Typhoid, dried, no growth; diphtheria, dried, no growth; anthrax, dried, no growth.

6. Cultures between mattresses: Typhoid, dried, no growth; diphtheria, dried, no growth; anthrax, dried, no growth.

B. Moist cultures.

1. Cultures free in chamber: Typhoid, moist, no growth; diphtheria, moist, no growth; anthrax, moist, no growth.

2. Cultures buried in hair pillow: Typhoid, moist, no growth; diphtheria, moist, no growth; anthrax, moist, no growth.

3. Cultures buried in feather pillow: Typhoid, moist, no growth; diphtheria, moist, no growth; anthrax, moist, no growth.

4. Cultures in rolled blanket: Typhoid, moist, growth; diphtheria, moist, no growth; anthrax, moist, growth.

5. Cultures buried in cotton mattress: Typhoid, moist, no growth; diphtheria, moist, no growth; anthrax, moist, no growth.

6. Cultures between mattresses: Typhoid, moist, no growth; diphtheria, moist, no growth; anthrax, moist, no growth.

As was to be expected, typhoid and diphtheria were killed under most conditions, but the degree of heat was not sufficient to destroy the more resistant anthrax spores. The feather pillow, the tightly rolled blanket, and the cotton mattress were not always penetrated. In the third series the killing of the anthrax in several instances can only be accounted for on the theory that formaldehyd reached it from some source.

Series IV and V show the effect of formaldehyd in considerable quantity at room temperature, about 30° C. It did not penetrate the ten thicknesses of cheese cloth, the only protection around the cultures free in the chamber, in sufficient quantity to kill anthrax, and it also failed to reach the typhoid and diphtheria, save under the first condition. The repetition of this set of experiments with identical results proves that when the exposure is limited to one hour, formaldehyd, even in large percentage, at room temperature is practically inert as a disinfectant.

I am aware that this conclusion was not reached in the report (a) previously referred to, but a comparison of the conditions under which the experiments were performed may explain the apparently contradictory results.

SERIES IV.

Quantity of formalin, 500 c. c.; time, one hour; vacuum, 15 inches.

A. Dried cultures.

1. Cultures free in chamber: Typhoid, dried, no growth; diphtheria, dried, no growth; anthrax, dried, growth.

2. Cultures buried in hair pillow: Typhoid, dried, growth; diphtheria, dried, growth; anthrax, dried, growth.

3. Cultures buried in feather pillow: Typhoid, dried, growth; diphtheria, dried, growth; anthrax, dried, growth.

4. Cultures in rolled blanket: Typhoid, dried, growth; diphtheria, dried, growth; anthrax, dried, growth.

5. Cultures buried in cotton mattress: Typhoid, dried, growth; diphtheria, dried, growth; anthrax, dried, growth.

6. Cultures between mattresses: Typhoid, dried, growth; diphtheria, dried, growth; anthrax, dried, growth.

B. Moist cultures.

The results with moist cultures need not be tabulated, inasmuch as under the above conditions they were identical with the dried cultures; that is, the only organism killed were typhoid and diphtheria, free in the chamber.

SERIES V.

This was a repetition of Series IV, with identically the same results.

The effect of the combination of heat, 80° C., with formaldehyd is shown in the following series: One, with an exposure of one hour; the other, with an exposure of thirty minutes. The results in each instance were practically the same.

SERIES VI.

Quantity of formalin, 500 c. c.; temperature of chamber, 80° C.; time, one hour vacuum, 15 inches.

A. *Dried cultures.*

1. Cultures free in chamber: Typhoid, dried, no growth; diphtheria, dried, no growth; anthrax, dried, no growth.
2. Cultures buried in hair pillow: Typhoid, dried, no growth; diphtheria, dried, no growth; anthrax, dried, no growth.
3. Cultures buried in feather pillow: Typhoid, dried, no growth; diphtheria, dried, growth; anthrax, dried, growth.
4. Cultures in rolled blanket: Typhoid, dried, no growth; diphtheria, dried, no growth; anthrax, dried, growth.
5. Cultures buried in cotton mattress: Typhoid, dried, no growth; diphtheria, dried, no growth; anthrax, dried, no growth.
6. Cultures between mattresses: Typhoid, dried, no growth; diphtheria, dried, no growth; anthrax, dried, growth.

B. *Moist cultures.*

1. Cultures free in chamber: Typhoid, moist, no growth; diphtheria, moist, no growth; anthrax, moist, no growth.
2. Cultures buried in hair pillow: Typhoid, moist, no growth; diphtheria, moist, no growth; anthrax, moist, no growth.
3. Cultures buried in feather pillow: Typhoid, moist, no growth; diphtheria, moist, no growth; anthrax, moist, growth.
4. Cultures in rolled blanket: Typhoid, moist, no growth; diphtheria, moist, no growth; anthrax, moist, growth.
5. Cultures buried in cotton mattress: Typhoid, moist, no growth; diphtheria, moist, no growth; anthrax, moist, no growth.
6. Cultures between mattresses: Typhoid, moist, no growth; diphtheria, moist, no growth; anthrax, moist, growth.

SERIES VII.

Quantity of formalin, 500 c. c.; temperature of chamber, 80° C.; time, 30 minutes; vacuum, 15 inches.

A. *Dried cultures.*

1. Cultures free in chamber: Typhoid, dried, no growth; diphtheria, dried, no growth; anthrax, dried, no growth.
2. Cultures buried in hair pillow: Typhoid, dried, no growth; diphtheria, dried, no growth; anthrax, dried, growth.
3. Cultures buried in feather pillow: Typhoid, dried, no growth; diphtheria, dried, no growth; anthrax, dried, no growth.
4. Cultures buried in rolled blankets: Typhoid, dried, no growth; diphtheria, dried, no growth; anthrax, dried, growth.
5. Cultures buried in cotton mattress: Typhoid, dried, growth; diphtheria, dried, no growth; anthrax, dried, growth.
6. Cultures between mattresses: Typhoid, dried, no growth; diphtheria, dried, no growth; anthrax, dried, growth.

B. *Moist cultures.*

1. Cultures free in chamber: Typhoid, moist, no growth; diphtheria, moist, no growth; anthrax, moist, no growth.
2. Cultures buried in hair pillow: Typhoid, moist, no growth; diphtheria, moist, no growth; anthrax, moist, growth.

3. Cultures buried in feather pillow: Typhoid, moist, no growth; diphtheria, moist, no growth; anthrax, moist, growth.

4. Cultures in rolled blankets: Typhoid, moist, no growth; diphtheria, moist, no growth; anthrax, moist, growth.

5. Cultures buried in cotton mattress: Typhoid, moist, no growth; diphtheria, moist, no growth; anthrax, moist, growth.

6. Cultures between mattresses: Typhoid, moist, no growth; diphtheria, moist, no growth; anthrax, moist, growth.

The foregoing experiments indicated that the disinfection of bulky articles, such as mattresses and pillows, could not be accomplished without an increase in the quantity of formalin or the degree of heat; but before instituting any change in the methods of procedure, it was decided to attempt the disinfection of lighter articles and those generally recognized as better adapted for treatment with formaldehyd. In Series VIII, the cultures were put in the pocket of a coat and the garment so arranged that the gas must penetrate the cloth to reach the germs. The same was done for the cultures placed in the trousers pocket. The letter was sealed and without perforation thrown into the chamber.

SERIES VIII.

Quantity of formalin, 500 c. e.; temperature of chamber, 80° C.; time, one hour; vacuum, 15 inches.

B. Dried cultures.

1. Cultures free in chamber: Typhoid, dried, no growth; diphtheria, dried, no growth; anthrax, dried, no growth.

2. Cultures in coat pocket: Typhoid, dried, growth; diphtheria, dried, no growth; anthrax, dried, growth.

3. Cultures in trousers pocket: Typhoid, dried, no growth; diphtheria, dried, no growth; anthrax, dried, no growth.

4. Cultures in letter: Typhoid, dried, no growth; diphtheria, dried, no growth; anthrax, dried, no growth.

5. Cultures between leaves of book: Typhoid, dried, no growth; diphtheria, dried, no growth; anthrax, dried, no growth.

B. Moist cultures.

1. Cultures free in chamber: Typhoid, moist, no growth; diphtheria, moist, no growth; anthrax, moist, no growth.

2. Cultures in coat pocket: Typhoid, moist, no growth; diphtheria, moist, no growth; anthrax, moist, growth.

3. Cultures in trousers pocket: Typhoid, moist, no growth; diphtheria, moist, no growth; anthrax, moist, no growth.

4. Cultures in letter: Typhoid, moist, no growth; diphtheria, moist, no growth; anthrax, moist, no growth.

5. Cultures between leaves of book: Typhoid, moist, no growth; diphtheria, moist, no growth; anthrax, moist, growth.

It was now evident that when anthrax was destroyed the other organisms failed to develop and further work with them was abandoned. At a temperature of 80° C., or more, it was thought that before the formaldehyd entered the chamber the slips of crash must be dried, and in the succeeding experiments the slips were saturated with a bouillon culture of spore-bearing anthrax and placed in the chamber without unnecessary delay. None of the quarantinable diseases is caused by a spore-bearing organism so far as we know, and their infectious principles are not classed as *resistant* to the disinfectants in common use, but in these experiments disinfection has not been considered successful unless the spores of anthrax were killed, and there is no hesitancy in recommending an agent possessing such decided germicidal properties.

Series IX is a duplicate of Series VIII as to results, although a smaller quantity of formalin was used.

SERIES IX.

Quantity of formalin, 360 c. c.; temperature of chamber, 80° C.; time, 30 minutes; vacuum, 15 inches.

Anthrax, moist, free in chamber, no growth; anthrax, moist, in coat pocket, growth; anthrax, moist, in trousers pocket, no growth; anthrax, moist, in letter, no growth; anthrax, moist, between leaves of book, no growth; anthrax, moist, under blanket, growth.

From the last two series, it was more than ever evident that even to disinfect articles comparatively easily penetrated the quantity of formalin, or degree of heat, or both, must be increased. The next seventeen series indicate that the degree of heat is the more important. This is well illustrated by Series X, XIV, and XVI, in which, with an increase of the temperature of the chamber to 90° C., disinfection was complete, while in Series IV, V, VI, VII, VIII, in which the same quantity of formalin, 500 c. c., was used, but at a lower temperature, anthrax was only rarely destroyed.

SERIES X.

Quantity of formalin, 500 c. c.; temperature of chamber, 90° C.; time, 30 minutes; vacuum, 15 inches.

Anthrax, moist, free in chamber, no growth; anthrax, moist, in coat pocket, no growth; anthrax, moist, in trousers pocket, no growth; anthrax, moist, in letter, no growth; anthrax, moist, between leaves of book, no growth; anthrax, moist, under blanket, no growth.

When the formaldehyd was turned into the chamber for the above series the temperature was only 80° C., but it quickly rose to 90° C.

Series XIV and XVI confirmed Series X with identical results. In Series XVI were included the following experiments:

Anthrax, moist, buried in hair pillow, no growth; anthrax, moist, buried in feather pillow, no growth; anthrax, moist, buried in cotton mattress, no growth; anthrax, moist, between mattresses, no growth.

SERIES XI.

Quantity of formalin, 750 c. c.; temperature of chamber, 90° C.; time, 30 minutes; vacuum, 15 inches.

Anthrax, moist, free in chamber, no growth; anthrax, moist, in coat packet, no growth; anthrax, moist, in trousers pocket, no growth; anthrax, moist, in letter, no growth; anthrax, moist, between leaves of book, no growth; anthrax, moist, under blanket, no growth.

Series XV and Series XVIII confirmed Series XI with identical results. In Series XVIII were included the following experiments:

Anthrax, moist, buried in hair pillow, no growth; anthrax, moist, buried in feather pillow, no growth; anthrax, moist, buried in cotton mattress, no growth; anthrax, moist, between mattresses, no growth.

SERIES XII.

Quantity of formalin, 1,000 c. c.; temperature of chamber, 90° C.; time, 30 minutes; vacuum, 15 inches.

Anthrax, moist, free in chamber, no growth; anthrax, moist, in coat pocket, no growth; anthrax, moist, in trousers pocket, no growth; anthrax, moist, in letter, no growth; anthrax, moist, between leaves of book, no growth; anthrax, moist, under blanket, no growth.

SERIES XIII.

Quantity of formalin, 360 c. c.; temperature of chamber, 90° C.; time, 30 minutes; vacuum, 15 inches.

Anthrax, moist, free in chamber, no growth; anthrax, moist, in coat pocket, no growth; anthrax, moist, in trousers pocket, no growth; anthrax, moist, in letter, no growth; anthrax, moist, between leaves of book, no growth; anthrax, moist, under blanket, no growth.

SERIES XVII.

Quantity of formalin, 360 c. c.; temperature of chamber, 90° C.; time, 30 minutes; vacuum, 15 inches.

Anthrax, moist, free in chamber, no growth; anthrax, moist, in coat pocket, no growth; anthrax, moist, in trousers pocket, no growth; anthrax, moist, in letter, no growth; anthrax, moist, between leaves of book, no growth; anthrax, moist, under blanket, no growth; anthrax, moist, buried in hair pillow, no growth; anthrax, moist, buried in feather pillow, no growth; anthrax, moist, buried in cotton mattress, no growth; anthrax, moist, between mattresses, no growth.

It will be observed that this series is a duplicate of Series XIII, with four additional experiments.

Series XIX, XX, XXV, XXVI, and XXVII confirmed Series XIII with identical results.

In Series XXV and XXVI disinfection was not secured in the more bulky articles.

Although the results obtained in seven series with 360 c. c. of formalin were satisfactory it was considered desirable to fix upon the minimum efficient quantity. To that end, experiments were made with 100 c. c. and 200 c. c. of the mixture, and finally with 100 c. c. of formalin, to which was added 400 c. c. of water with calcium chloride and glycerin in the same proportion as for 500 c. c. of formalin. This last series seemed to indicate that penetration is greater for a small quantity of formaldehyd if a little moisture is present; the results certainly are better than in Series XXII, in which the quantity of formalin was actually the same. One chief advantage for formaldehyd is that it is efficient in a dry state, and is, therefore, available for disinfection of articles injured by moisture. For that reason the water of the formalin should not be increased in actual work. These three series are a proof, if any is necessary, that the germicidal effects in the preceding series were due to the formaldehyd, the heat acting merely as an intensifier.

SERIES XXII.

Quantity of formalin, 100 c. c.; temperature of chamber, 90° C.; time, 30 minutes; vacuum 15 inches.

Anthrax, moist, free in chamber, no growth; anthrax, moist, in coat pocket, growth; anthrax, moist, in pants pocket, growth; anthrax, moist, in letter, growth; anthrax, moist, in book, growth; anthrax, moist, under blanket, growth; anthrax, moist, in hair pillow, growth; anthrax, moist, in feather pillow, growth; anthrax, moist, in cotton mattress, growth; anthrax, moist, between mattresses, growth.

SERIES XXIII.

Quantity of formalin, 200 c. c.; temperature of chamber, 90° C.; time, 30 minutes; vacuum, 15 inches.

Anthrax, moist, free in chamber, no growth; anthrax, moist, in coat pocket, no growth; anthrax, moist, in pants pocket, no growth; anthrax, moist, in letter, no growth; anthrax, moist, in book, no growth; anthrax, moist, under blanket, growth; anthrax, moist, in hair pillow, growth; anthrax, moist, in feather pillow, growth; anthrax, moist, in cotton mattress, growth; anthrax, moist, between mattresses, no growth.

SERIES XXIV.

Quantity of formalin, 100 c. c., to which was added 400 c. c. of water, calcium chloride 100 gms., and glycerin 50 c. c.; temperature of chamber, 90° C.; time, 30 minutes; vacuum, 15 inches.

Anthrax, moist, free in chamber, no growth; anthrax, moist, in coat pocket, no growth; anthrax, moist, in pants pocket, no growth; anthrax, moist, in letter, no growth; anthrax, moist, in book, no growth; anthrax, moist, under blanket, no growth; anthrax, moist, in hair pillow, no growth; anthrax, moist, in feather pillow, no growth; anthrax, moist, in cotton mattress, no growth; anthrax, moist, between mattresses, no growth.

Series X confirmed by Series XIV and XVI, in all of which 500 c. c. of formalin was used, with a temperature of 90° C. in the chamber; Series XI confirmed by Series XV and XVIII, in which 750 c. c. of formalin was used; and Series XII with 1,000 c. c. of formalin—seven separate experiments with identical results—prove conclusively the efficiency of formaldehyd as disinfectant when combined with heat. In another set of seven experiments, Series XIII, XVII, XIX, XX, XXV, XXVI, XXVII, with only 360 c. c. of formalin and 90° C. of heat, it will be observed that the results were equally as good as with more of the solution except in Series XXV and XXVI, in which without any apparent cause there was failure to secure disinfection of the bulkier articles.

As previously mentioned, in these experiments no estimation of the percentage of gas in the chamber has been attempted. To make them of practical value a ratio may be established between the number of cubic centimeters of solution used and the number of liters capacity of the chamber.

This cylinder had a capacity of 1,680 liters. The ratio of 1,000:1,680 is rather more than 1:2; that of 750:1,680 is something less than 1:2; that of 500:1,680 is about 1:3; while that of 360:1,680 is a trifle more than 1:5. Once the capacity of the chamber in which the work is to be performed is known the proper quantity of the mixture required is readily determined.

The writer would be distinctly understood as not recommending formaldehyd, even when combined with a high degree of heat, as a disinfecting agent upon which reliance can always be placed for the treatment of articles requiring much penetration, especially when the exposure is limited to one-half hour. A review of the experiments will show that in twelve series in which the quantity of formalin mixture varied from 360 c. c. to 1,000 c. c., or taking the ratio given, from 1:5 to 1:2 mattress and pillows were sterilized; but in two series in which the proportion of the mixture was as 1:5 the mattresses and pillows were not penetrated. A critical examination of nearly all the published experiments with this agent will reveal instances in which organisms that there was every reason to expect would be killed have survived, and vice versa. It is that occasional unaccountable uncertainty of action that calls forth the warning not to attempt disinfection with formaldehyd in a case in which there is any doubt as to the result.

Care must be taken to arrange the various articles in such a manner that a free circulation is allowed around and among them. If the contents of a trunk were thrown into the chamber in a heap it would not be penetrated. The articles which can be treated successfully will be found in practice to be wearing apparel, books, letters, and such other things as do not require deep penetration. Whenever possible they should be suspended on hooks or lines or so spread that the largest possible surface is exposed. Leather goods, trunks, suit cases, etc., may be subjected to 90° C., dry heat, without injury. The elasticity of rubber is apparently not diminished.

OUTLINE OF METHOD.

1. Heat jackets with steam so that temperature of chamber is 90° C.
2. Pour into formalin generator one fourth as many c. c. of formalin mixture as there are liters capacity in chamber, e.g. 625 c. c. for a chamber of 2,500 liters capacity.
3. Obtain a vacuum of 15 inches or one-half an atmosphere.
4. When pressure in generator reaches 40 to 60 pounds open the valve just enough to allow a gradual reduction of pressure by the passage of formaldehyd into the chamber. If this valve is opened too wide the fluid may be driven into the chamber and its contents injured.
5. When it is found that all the gas is driven off close the valve to the chamber.
6. Maintain temperature of chamber at 90° C., or even higher, by allowing steam to course through jacket.
7. At end of thirty minutes the vacuum may be broken and the mixture of air and formaldehyd exhausted.
8. With a vacuum of 10-15 pounds the ammonia generator may now be operated in the same manner, using one-half as much ammonia water as of the formalin mixture.
9. After the ammonia gas has entered the chamber the vacuum may be at once broken and the chamber opened.
10. Each time, after the formalin generator is operated, it should be thoroughly cleansed with water. If the sirupy residue is not removed it soon fouls the apparatus and clogs the outlet.

Respectfully, yours,

E. K. SPRAGUE,
Acting Director.

The SURGEON-GENERAL,
U. S. Marine-Hospital Service.

United States transports from the Philippines to be inspected by the Marine-Hospital Service at Hongkong and Yokohama.

WAR DEPARTMENT,
Washington, September 7, 1899.

SIR: I have the honor to acknowledge the receipt of your letter of the 31st ultimo, inviting attention to section 2 of an act entitled "An Act Granting Additional Quarantine Powers and Imposing Additional Duties upon the Marine-Hospital Service," approved February 15, 1893, and requesting that orders be issued to the commanding officers in the Philippine Islands, directing them to have the masters of United States transports, when touching at either Hongkong or Yokohama, to permit the inspection by the medical officers of the Marine-Hospital Service and to secure from them the supplemental bills of health described in the quarantine regulations issued by your department.

In reply, I beg to state that orders in accordance with your request will be given.

Very respectfully,

ELIHU ROOT,
Secretary of War.

The honorable the SECRETARY OF THE TREASURY.

[Inclosure.]

HEADQUARTERS OF THE ARMY, ADJUTANT-GENERAL'S OFFICE,
Washington, September 9, 1899.

SIR: The Secretary of War directs me to inclose copy of a letter of the honorable the Secretary of the Treasury, dated August 31, 1899, setting forth the desirability of an inspection of United States transports coming from the Philippines and touching at

either Hongkong or Yokohama by medical officers of the Marine-Hospital Service, and to direct that you issue the necessary instructions to the end that the masters of the United States transports, when touching at either of the ports mentioned, shall permit the inspection by the medical officers of the Marine-Hospital Service and secure from them a supplemental bill of health as described.

Very respectfully,

H. O. S. HEISTAND,
Assistant Adjutant-General.

The COMMANDING GENERAL,
Department of the Pacific and Eighth Army Corps, Manila, Philippine Islands.

Immigrants to Cuba to be inspected by the Marine-Hospital Service.

TREASURY DEPARTMENT,
Washington, September 2, 1899.

SIR: I respectfully invite your attention to War Department Circular No. 13, Division of Customs and Insular Affairs, dated April 14, 1899, declaring that the laws and regulations governing immigration to the United States are to be in effect in the territory under government by the military forces of the United States, and directing collectors of customs to enforce said laws and regulations until the establishment of immigration stations in the said territory. Also, to the immigration regulations for the Island of Cuba, issued by the War Department June 6, 1899. I would further invite your attention to the immigration laws and regulations of the United States, dated April 25, 1893, in which under section 8, it is prescribed that the medical examination of alien immigrants shall be made by surgeons of the Marine-Hospital Service; this section being amended by act approved March 3, 1893, to read:

"That the medical examination of arriving immigrants * * * may be made by any regular medical officers of such Marine-Hospital Service detailed therefor by the Secretary of the Treasury, and civil surgeons shall only be employed temporarily from time to time for specific emergencies."

The immigration regulations for the Island of Cuba before referred to do not prescribe any examination for alien immigrants. A considerable proportion of the immigration to Cuba is from Spain. Spain having very close commercial relations with Portugal where bubonic plague exists at the present time, it is of particular importance that all immigrants arriving in Cuba be subjected to a thorough medical examination. Officers of the Marine-Hospital Service are stationed at all of the important ports in Cuba and are available for this duty.

I have, therefore, to request that if not in conflict with existing regulations, or orders from your Department, this work be assigned to the Medical Officers of the Marine-Hospital Service.

Respectfully yours,

L. J. GAGE,
Secretary.

The honorable the SECRETARY OF WAR.

WAR DEPARTMENT,
Washington, September 7, 1899.

SIR: I have the honor to acknowledge the receipt of your letter of the 2d instant, asking that the duty of making a thorough medical inspection of immigrants from Spain arriving in Cuba be assigned to the medical officers of the Marine-Hospital Service stationed there.

Maj. Gen. John R. Brooke, Governor-General of Cuba, has been this day directed to comply with your request.

Very respectfully,

ELIHU ROOT,
Secretary of War.

The honorable the SECRETARY OF THE TREASURY.

[Reports to the Surgeon-General United States Marine-Hospital Service.]

Yellow fever in Key West, Fla., and other places.

[Continued from last PUBLIC HEALTH REPORTS.]

September 14: Assistant Surgeon McMullen, at Memphis, Tenn., is directed to assume temporary charge of the Service there and supervise the inspection of steamboats from New Orleans, using Acting Assistant Surgeon Laws for this purpose.

Assistant Surgeon McAdam reports for to-day 15 cases, 1 death.

September 15: Assistant Surgeon McAdam is authorized to charter the *Shamrock* for use.

Assistant Surgeon McAdam reports for this date 30 cases, 1 death.

Assistant Surgeon McMullen, at Memphis, reports as follows:

In pursuance of Bureau telegram of the 14th instant, in which I am directed to assume temporary command of the Service at this port and to supervise inspection of steamboats from New Orleans, I have the honor to state I have conferred with Dr. Haase, secretary of the city board of health, and the following plan has been agreed upon:

As it is difficult to find out when a New Orleans boat is to get here, Dr. Haase has promised to have the police notify me a few hours before a New Orleans boat is to dock and to see that a sufficient number of police officers are present to prevent any one landing before the inspection is made.

Previous to my arrival here the city board of health ordered that on and after September 13 no water craft coming from New Orleans or other port where yellow fever exists, would be allowed to land at Memphis without a clean bill of health from the United States Marine-Hospital Service. A previous order forbade the landing of household goods from New Orleans under any circumstances. A copy of this order has been forwarded to the Bureau from this office. Act. Asst. Surg. J. W. Laws has been instructed to make these inspections and, after seeing everyone on board, to give such certificate as he is able.

I am informed by Dr. Haase that New Orleans passengers and freight are occasionally transferred between New Orleans and Memphis to other boats for different points along the river, including Memphis, and in this way passengers reach here from New Orleans by other boats and are not inspected.

I understand that a very limited number of boats are now running between Memphis and New Orleans direct, owing to the low water.

September 16: Surgeon Carter reports from New Orleans:

One case same district yesterday. Magruder goes to Jackson to confer and arrange train inspection; he will be absent a week. Inspection of steamboats for the upper river points is being done; no passengers are taken. Boats put in good order, freight inspected, and if unsanitary, rejected. Schooner for quarantining portion of the Mississippi coast disinfected and held. No restriction on merchandise from wholesale district needed and none imposed.

Assistant Surgeon Trotter reports from Port Tampa that a house-to-house inspection of Port Tampa City and Tampa is negative, and nothing suspicious has been reported from St. Petersburg.

Assistant Surgeon McAdam reports for to-day 38 cases, 1 death.

September 17: Assistant Surgeon McAdam reports for to-day 5 cases, 1 death.

Assistant Surgeon Trotter reports condition in detention camp at Port Tampa City unchanged.

September 17 and 18: Assistant Surgeon McAdam reports for the two days, 54 cases and 2 deaths.

September 18: Surgeon Carter reports that Surgeon Magruder is arranging train inspection—one complete system from the Mississippi River to the Louisville and Nashville Railroad. * * * He reports 1 new case of fever—that freight traffic is practically unobstructed, save that no freight originating in New Orleans is received in Texas. New Orleans freight allowed passage through Texas and freight through New Orleans received in Texas. Very few unnecessary restrictions; he meets Sanders to-morrow to simplify train-inspection service; everything running smoothly.

September 18: Surgeon McIntosh, at Mobile, is directed to report by wire to Surgeon Carter, at New Orleans, for orders. Duty will be to operate train inspection from outside.

September 19: Assistant Surgeon McAdam reports to-day 31 cases and 1 death.

Passed Assistant Surgeon Smith reports admitted to detention camp at Tortugas 44 from Key West and 33 from contractor's gang at Tortugas.

Surgeon Carter reports 2 new cases of yellow fever in New Orleans in the same house in the upper residence portion. Weather very unfavorable for the spread of the fever.

Assistant Surgeon Trotter reports no change in the situation and that the camp at Port Tampa City will be closed Thursday (21st) noon, as the cases will then have been ten days under observation. All well in camp and if nothing develops the state quarantine against Port Tampa and Port Tampa City will be raised on the 21st.

Surgeon Pettus at Cape Charles is informed that his recommendation to allow ships from New Orleans, with no sickness aboard, to coal in quarantine—no person from shore going aboard, is approved.

U. S. S. Nezinscot disinfected on account of yellow fever.

SOUTH ATLANTIC QUARANTINE STATION, *September 9, 1899.*

SIR: I have the honor to report that at least 2 of the 21 persons who arrived here on the U. S. S. *Nezinscot* give a rather clear history of recent yellow fever.

The vessel has been ordered to proceed to Norfolk, Va., after clearance here.

In view of the foregoing facts * * * have disinfected the vessel and dunnage with steam and formaldehyd.

Respectfully, yours,

HUGH S. CUMMING,
Passed Assistant Surgeon, U. S. M. H. S.

Yellow fever in the United States as reported to the Surgeon-General United States Marine-Hospital Service from August 31 to September 22, 1899.

Places.	Date.	Cases.	Deaths.
Florida:			
Key West.....	Aug. 31.....	6	.....
	Aug. 31-Sept. 4...	28	3
	Aug. 31-Sept. 5...	50	6
	Sept. 6.....	14	.....
	Aug. 31-Sept. 8...	96	8
	Sept. 9.....	31	2
	Sept. 10.....	23	1
	Sept. 11.....	12	.....
	Sept. 12.....	29	1
	Sept. 13.....	35	0
	Sept. 14.....	15	1
	Sept. 15.....	30	1
	Sept. 16.....	38	1
	Sept. 17-Sept. 18...	54	2
	Sept. 19.....	31	1
	Sept. 21.....	45	0
Miami.....	Sept. 5.....	1	.....
Port Tampa City.....	Sept. 10.....	1	1
Louisiana:			
New Orleans.....	Aug. 27-Sept. 19...	12	2
Mississippi:			
Jackson.....	Sept. 10.....	1	.....
Mississippi City.....	Sept. 1.....	1	1
	Sept. 14.....	4	.....

Report of vessels from Cuban and Porto Rican ports entering Baltimore during the week ended September 9, 1899.

BALTIMORE, MD., September 9, 1899.

SIR: I respectfully transmit the following statement of vessels which have entered at the port of Baltimore from ports in Cuba and Porto Rico during the week ended September 9, 1899:

Date.	Nationality.	Name of vessel.	Where from.	Date of sailing.	Nature of cargo.
Sept. 6	Norwegian.....	Steamship Lyderhorn.....	Daiquiri.....	Aug. 30	Ore.
Sept. 9	British.....	Steamship Straits of Dover...	Santiago de Cuba.....	Sept. 2	Do.

JNO. R. KING,
Acting Deputy Collector.

Report of vessels from Cuban and Porto Rican ports entering Baltimore during the week ended September 16, 1899.

BALTIMORE, MD., September 16, 1899.

SIR: I respectfully transmit the following statement of vessels, which have entered at the port of Baltimore, from ports in Cuba and Porto Rico, during the week ended September 16, 1899. No transactions.

Respectfully, yours,

JNO. R. KING,
Acting Deputy Collector.

PORTO RICO.

Sanitary reports from Ponce.

PONCE, PORTO RICO, August 26, 1899.

SIR: I have the honor to transmit herewith the weekly quarantine and abstract of bills of health reports for the week ended August 26. I also inclose mortality statistics for the two weeks ended August 26.

The general health of Ponce shows little change. The report of infectious diseases for the week shows 3 cases of typhoid fever, but this is usual in this season of the year.

Nothing of interest has occurred among the shipping during the week.

Respectfully, yours,
Acting Assistant Surgeon, U. S. M. H. S., In Temporary Charge.
 The SURGEON-GENERAL,
U. S. Marine-Hospital Service.

[Inclosure.]

Number and causes of deaths in Ponce jurisdiction during the two weeks ended August 26, 1899: Aortitis, chronic, 2; bilious remittent fever, 1; bronchitis, chronic, 1; congestion of lungs, 1; chloro-anæmia, 3; cholera infantum, 1; diphtheria, 1; drowned, 51; dysentery, chronic, 1; dyspepsia, 1; enteritis, acute, 2; enteritis, chronic, 7; entero-colitis, chronic, 7; erysipelas, 1; gangrene (old age), 1; gangrene of vulva, 1; gastro-enteritis, acute, 2; gastro-hepatitis, 1; gastrorrhagia, 1; hepatitis, chronic, 2; inanition, 7; malarial fever, 5; metritis, 1; metrorrhagia, 1; meningitis, cerebral, 1; meningitis by measles, 1; nephritis, chronic, 1; paralysis of heart, 1; pernicious fever, 1; pneumonia, 1; puerperal fever, 1; pyæmia, 1; smallpox, 2; strangulated hernia, 1; tetanus infantum, 4; tuberculosis, pulmonary, 12; valvular disease of heart, 1; total, 130. Births during the same period, 12.

PONCE, PORTO RICO, *September 2, 1899.*

SIR: I have the honor to transmit herewith the weekly quarantine and abstract of bills of health reports for the week ended September 2.

I also inclose tabulated statement of the transactions of the Service at this port during the month of August, with comparative figures for the same month of the past year, and similar statistics concerning the health reports of Ponce.

We have had a week's rain storm; the river that crosses the road between Ponce and this Playa flooded and hardly any communication was had for two days between the harbor and the city. The bridge was carried away on August 8, and has not been replaced yet. Besides this unfortunate state of affairs, we have had boisterous weather all along interfering with all business transactions during the last week.

Nothing of interest has occurred during the week among the shipping, and the general health of Ponce continues as before.

Respectfully, yours,
Acting Assistant Surgeon, U. S. M. H. S., In Temporary Charge.
 The SURGEON-GENERAL,
U. S. Marine-Hospital Service.

[Inclosure.]

Summary of transactions of service, etc., during August, 1899.

Total number of deaths reported during August, 1899, 354; total number of deaths reported during August, 1898, 178; total number of births reported during August, 1899, 40; total number of births reported during August, 1898, 35; total number of vessels inspected during August, 1899, 22; total number of bills of health issued during August, 1899, 22; number of vessels in quarantine during August, 1899, 1; number of passengers whose baggage was disinfected during August, 1899, none; number of vessels inspected during August, 1898, 21; number of vessels which sailed during August, 1898, 18; number of immigrants inspected during August, 1899, 45; rejections, none.

Sanitary report from San Juan and subports—the hurricane.

SAN JUAN, PORTO RICO, *September 6, 1899.*

SIR: I have the honor to submit the following report of the operations of the Service during the month of August, 1899: Number of

births reported, 49; number of births reported, August, 1898, comparative, 24; number of deaths reported, 63; number of deaths reported, August, 1898, comparative, 53. A list of the causes of deaths is inclosed herewith. Number of vessels inspected, 39; number of vessels inspected, August, 1898, comparative, 7; number of vessels in observation quarantine, 2; number of persons detained in observation quarantine, 13. These passengers were arrivals on the Spanish steamers from Havana, and were nonimmunes, and held to complete the five-day period of observation. Number of pieces of baggage disinfected, 45; number of vessels in absolute quarantine, 1. This vessel was the U. S. transport *Kilpatrick*, which arrived here on August 17, direct from Cuban ports, having a foul bill of health, in bad sanitary condition, and a suspicious case of sickness on board. On account of this it was not deemed safe to admit her to free pratique, and I recommended to the military authorities that she be ordered north for disinfection, which was done.

Vaccination is still being practiced, although there are no cases of smallpox, and certificates issued to all persons leaving the island for the United States and Cuba. Ninety-five such certificates were issued and viséd during August.

The consolidated reports from the subports for the month are as follows: Number of vessels inspected at Mayaguez, 12; at Aguadilla, 6; at Arecibo, 4; Fajardo, 4; at Humacao, 2, and at Arroyo, 2. The number of deaths during the month were 130 at Arecibo; 121 at Mayaguez; 103 at Humacao; 48 at Aguadilla; 21 at Arroyo, and 18 at Fajardo. The principal causes of these deaths are anæmia and diseases of the stomach, although quite a few lost their lives in the recent storm, as will be shown further on in this report.

The hurricane reached this island on the night of the 7th of August, and continued until the afternoon of the 8th. The wind blew furiously, at one time attaining a velocity of about 85 miles per hour, and in some places on the island blew down quite a number of houses and destroyed all of the crops, leaving many persons homeless. Rain accompanied the wind, and added to the disaster by causing the streams to overflow their banks. Many of the towns situated in the low valleys were thus flooded and lives and property destroyed. Particularly was this true of Ponce, Arecibo, and Comerio. The list of deaths reported by the sanitary inspectors of the subports as being directly attributed to the storm are as follows: At Humacao, 57; Arecibo, 18; Arroyo, 6, and Mayaguez, 12. In this place a few houses were unroofed, telephone and other wires blown down, a few persons hurt by flying débris, but no serious damage done. A small schooner was blown on the reef in the harbor, and one of the crew was drowned; the others were picked up by the naval collier *Cesar*.

Respectfully, yours,

A. H. GLENNAN,

Surgeon, U. S. M. H. S., In Command.

The SURGEON-GENERAL,

U. S. Marine-Hospital Service.

[Inclosure.]

Vital statistics of San Juan, Porto Rico, for August, 1899.

Death rate August, 1899: Asphyxia neonatorum, 2; athrepsia, 2; abscess of the liver, 1; anæmia, 2; bronchitis, 1; broncho-pneumonia, 2; cirrhosis of the liver, 4; carcinoma of the uterus, 1; pulmonary congestion, 2; cerebral congestion, 2; serous congestion of the brain, 2; old age, 2; hypertrophy of the heart, 3; dysentery, 1; insanity, 2; entero-colitis, 1; chronic enteritis, 2; puerperal eclampsia, 1; burned, 1;

typhoid fever, 2; pernicious malarial fever, 1; gastro-enteritis, 2; dropsy, 1; acute hepatitis, 1; hemorrhage (traumatic), 2; meningo-encephalitis, 1; tuberculous meningitis, 1; acute peritonitis, 1; rachitis, 3; paralysis, 1; acute rheumatism, 1; syncope, 1; syphilis, 1; pulmonary tuberculosis, 8; intestinal tuberculosis, 1; tetanus neonatorum, 1; total, 63. August, 1898: Births, 24; deaths, 53. August, 1899: births, 49; deaths, 63.

Respectfully submitted.

A. H. GLENNAN,

Surgeon, U. S. M. H. S., In Command.

The SURGEON-GENERAL U. S. MARINE-HOSPITAL SERVICE.

REPORTS FROM THE MEXICAN BORDER.

Eagle Pass, Tex., September 13, 1899.—During the past ten days 7 persons were taken from the train at this port, none having the proper certificates to permit entry. The detention camp has been taxed to its utmost.

Besides these 7 people detained here, I refused entry to 10 more on the footbridge.

It seems that every railroad depot in Mexico is placarded to the effect that no one will be allowed entry at the frontier unless bearing a certificate, etc., from an officer of the Marine-Hospital Service in Mexico, or some consul, deputy consul, or consular agent in that republic. A report from one of the United States sanitary guards (U. S. M. H. S.) at Presidio, informs me that the smallpox situation in Mexico is assuming a more serious aspect, and the Mexicans are trying very hard to get to this side of the Rio Grande. Mr. Drake has ordered me to leave on the first train for Presidio and enforce the Marine-Hospital Service regulations. I feel that, although the condition of the Mexican side is serious, one can keep the smallpox from gaining any further footing on American territory. It may be necessary to erect a detention camp or pesthouse on this side of the river near Presidio. I shall endeavor to make Presidio County stand the expense of the same and keep it properly guarded. Will keep the Bureau informed.

I have the honor to remain,

Most respectfully,

LEA HUME,

Acting Assistant Surgeon, U. S. M. H. S.

El Paso, Tex., September 10, 1899.—I have the honor to report that during the week ended September 9, 1899, there arrived on the Mexican Central 2 women and a child from the City of Mexico, neither of them having certificates or marks of disinfection on their baggage. They refused to give information of their residence four days prior to their arrival at the City of Mexico. Ascertaining from the passengers in the same train that the party spoke of their fleeing from an infected place, I detained them four days and disinfected their baggage. No arrivals from Tampico.

I am, sir, very respectfully,

E. ALEXANDER,

Sanitary Inspector, U. S. M. H. S.

Laredo, Tex., September 12, 1899.—SIR: I have the honor to submit the following report of the inspection service for the week ended September 9, 1899:

International ferry: Inspected and permitted to enter, 721; refused entry, 6. Total inspected, 727.

International foot and tramway bridge: Inspected and permitted to enter, 2,344; refused entry, 8. Total inspected, 2,352. The above includes 19 immigrants.

Mexican National Railroad Bridge: From the City of Mexico, 51; from San Luis Potosi, 18; from Saltillo, 24; from Monterey, 65; from other points, 45. Total inspected and permitted to enter, 203.

Apparently persons not having sufficient evidence of noninfection leave the trains at Nuevo Laredo, Mexico, and are held up at the foot-bridge and ferry.

Respectfully, yours,

H. J. HAMILTON,
Acting Assistant Surgeon, U. S. M. H. S.

Smallpox in the United States as reported to the Surgeon-General United States Marine-Hospital Service, June 30 to September 22, 1899.

[For reports received from January 1 to June 30, 1899, see PUBLIC HEALTH REPORTS for June 30.]

Places.	Date.	Cases.	Deaths.	Remarks.
California:				
Oakland.....	June 3-June 24...	2	0	
San Diego.....	June 1-June 30...	2	1	
Total for the State.....		4	1	
Colorado:				
Hinsdale County.....	Sept. 9.....	1		
Las Animas County.....	do.....	1		
Total for the State.....		2		
Connecticut:				
Stamford.....	July 20.....	1		
Florida:				
Jacksonville.....	July 1-Sept. 2...	7		
Gadsden County.....	July 1-July 31...	18		
Hillsboro County.....	April 10-July 10...	35		
Jackson County.....	July 1-July 31...	1		
Lake County.....	do.....	1		
Leon County.....	do.....	4		
Marion County.....	do.....	3		
Pasco County.....	do.....	5		
Total for the State.....		74		
Georgia:				
Brooks County.....	Aug. 5-Aug. 30...	2	1	
Montgomery County.....	July 15-Aug. 10...	31		
Savannah.....	June 3-July 27...	7		
Total for the State.....		40		
Illinois:				
Chicago.....	June 20-July 1...	3	0	
Indiana:				
Clark County.....	July 1-July 31...	1		
Lake County.....	do.....	1		
Total for the State.....		2		
Kansas:				
Kansas City.....	June 10-June 17...	2		
Kentucky:				
Leslie County.....	Aug. 17.....	104		
Louisville.....	June 23-Aug. 31...	16	0	
Total for the State.....		120		
Louisiana:				
New Orleans.....	June 17-Aug. 26...	14	0	
Shreveport.....	do.....	3	0	Doubtful.
Total for the State.....		17	0	
Maryland:				
Baltimore.....	June 18-July 15...	18	0	
Steelton.....	June 28.....	14		
Total for the State.....		32		

Smallpox in the United States, etc.—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
Massachusetts:				
Boston	June 27-Sept. 2...	9	3	
Everett	Aug. 7.....	1		
Fall River	June 27-Sept. 9....	2		
Roxbury	Aug. 30.....	3		
Total for the State.....		15	3	
Minnesota:				
Austin.....	July 15-Aug. 1...	1	0	
Duluth.....	do.....	1	0	
East Grand Forks	do.....	7	0	
Total for the State.....		9	0	
Mississippi:				
Natchez	July 7-Aug. 24...	14	0	
Pine Ridge.....	Aug. 16.....	8		
Total for the State.....		22		
Missouri:				
Barry County.....	April 6-July 20...	35		
Lawrence County.....	do.....	1		
Lincoln County.....	do.....	9		
Scott County.....	do.....	25		
St. Francois County.....	April 6-July 20...	30	2	
Stoddard County.....	do.....	35		
St. Louis	June 19-June 26...	4		
Total for the State.....		139	2	
North Carolina:				
Bertie County.....	May 1-May 31...	4		
Burke County.....	do.....	22		
Catawba County.....	do.....	1		
Charlotte.....	June 30.....	1		
Chowan County.....	May 1-May 31...	1		
Currituck County.....	do.....	6		
Gates County.....	do.....			Smallpox reported.
Hertford County.....	do.....	4		
McDowell County.....	do.....	1		
Moore County.....	do.....	1		
Nash County.....	do.....			Do.
Northampton.....	do.....	1		
Rockingham.....	do.....	14		
Rowan	do.....	1		
Wake.....	do.....	4		
Wayne	do.....	7		
Total for the State.....		68		
Ohio:				
Cincinnati.....	July 7-Sept. 8...	17		
Cleveland	June 24-Sept. 2...	17		
Columbus.....	July 30-Aug. 5...	1		
Dayton	July 15-Aug. 5...	3		
Total for the State.....		38		
Oregon:				
Portland	June 13-July 19...	6	0	
Umatilla County.....	Sept. 7.....			Do.
Pennsylvania:				
Allegheny County.....	June 3-Aug. 5...	30		
Belle Vernon.....	June 3-June 26...	1		
Brownsville Township.....	do.....	34		
Cambria County.....	June 3-Aug. 5...	27		
Clearfield County.....	do.....	12		
Fayette County.....	do.....	23		
Jefferson County.....	June 3-June 26...	5		
Philadelphia	June 3-Aug. 5...	64	0	
Somerset County.....	do.....	10		
Washington County	June 3-June 26...	11		
Westmoreland County.....	June 3-Aug. 5...	2		
Total for the State.....		219		At Penn Station, several.
Porto Rico:				
Ponce.....	June 17-July 22...	6		
Texas:				
Beaumont.....	Aug. 2.....	8		
Brazos County.....	Aug. 4-Aug. 18...			Many cases reported.
Brenham, Wash'gton County.....	do.....	1		
Dallas.....	do.....	1		
Presidio.....	July 28.....	40		
Sabine Pass.....	July 15.....	2		
San Antonio	Aug. 1-Aug. 31...	1	1	

Smallpox in the United States, etc.—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
Texas—Continued.				
Shafter.....	July 28-Aug. 5...	25	.....
Taylor.....	Aug. 4-Aug. 18...	1	.....
Sixteen places.....	Aug. 5-Sept. 9...	79	4	
Total for the State		158	5	
Virginia:				
Cape Charles.....	July 8.....	1	.....
Danville.....	June 14-July 6...	30	0	
Norfolk.....	June 22-Aug. 4...	19	0	
Portsmouth.....	June 22-Sept. 9...	11	0	
Augusta County.....	July 1-July 31...	2	.....
Brunswick County.....	do.....	2	.....
Charles City County.....	do.....	8	.....
Gloucester County.....	do.....	.....	.....	Smallpox reported.
Goochland County.....	do.....	.....	.....	Do.
Greensville County.....	do.....	.....	.....	Do.
Hanover County.....	do.....	1	.....
Isle of Wight County.....	do.....	.....	.....	Do.
Princess Anne County.....	do.....	2	.....
Prince George County.....	do.....	1	.....
Scott County.....	do.....	.....	.....	Several cases.
Surry County.....	do.....	3	.....
Sussex County.....	do.....	7	.....
Wise County.....	do.....	33	.....
Total for the State.....		119	.....
Washington:				
Almira.....	July 3.....	9	.....
Seattle.....	July 19.....	1	.....
Spokane.....	July 8-Aug. 19...	7	.....
Tacoma.....	July 23-Aug. 5...	2	.....
Walla Walla.....	June 29.....	8	0	
Total for the State.....		27	.....
West Virginia:				
Benwood.....	July 5.....	1	0	
Elkhorn, McDowell County...	Aug. 19.....	1	.....
Total for the State		2	.....

Inspection of immigrants at Ponce during August, 1899.

PONCE, PORTO RICO. August 31, 1899.

SIR: I have the honor to give below the number of immigrants inspected by this office during the month of August, with rejections: August 4, steamship *Polaria*, Hamburg and St. Thomas, 1. August 10, steamship *Philadelphia*, Puerto Cabello, Curaçao, La Guayra, 8; steamship *Las Palmas*, Port Limon, Curaçao, La Guayra, 1. August 16, steamship *Valdivia*, Hamburg and St. Thomas, 2. August 18, steamship *Salvador*, Port au Prince and St. Domingo, 5; steamship *Conde Wifredo*, Barcelona (Spain), 10. August 19, steamship *Maria Herrera*, Cuba and St. Domingo, 8. August 24, steamship *Caracas*, Puerto Cabello, Curaçao and La Guayra, 10. Total, 45. There were no rejections during the month.

Respectfully, yours,

P. MALARET,

*Acting Assistant Surgeon, U. S. M. H. S., In Temporary Charge.**Inspection of immigrants at San Francisco during August, 1899.*

SAN FRANCISCO QUARANTINE STATION,

Angel Island, Cal., September 10, 1899.

SIR: I have the honor to report that during the month of August, 1899, 712 immigrants were inspected at the port of San Francisco, and that there were 3 rejections—2 from secondary syphilis and 1 from tuberculosis.

Respectfully, yours,

J. J. KINYOUN,

Surgeon, U. S. M. H. S.

*Report of immigration at Boston for the week ended September 16, 1899.*OFFICE OF U. S. COMMISSIONER OF IMMIGRATION,
*Port of Boston, September 17, 1899.**Number of alien immigrants who arrived at this port during the week ended September 16, 1899 ;
also names of vessels and ports from which they came.*

Date.	Vessel.	Where from.	No. of immigrants.
Sept. 10	Steamship Prince Arthur.....	Yarmouth, Nova Scotia.....	145
Do...	Steamship Yarmouth.....	do.....	144
Sept. 11	Steamship Admiral Dewey.....	Port Morant, Jamaica.....	17
Do...	Steamship Halifax.....	Halifax, Nova Scotia.....	162
Sept. 12	Steamship Prince George.....	Yarmouth, Nova Scotia.....	54
Do...	Steamship Armenian.....	Liverpool, England.....	10
Do...	Steamship Sachem.....	do.....	2
Sept. 13	Steamship Cambrian.....	London, England.....	1
Do...	Steamship Prince Arthur.....	Yarmouth, Nova Scotia.....	61
Do...	Steamship Boston.....	do.....	60
Do...	Schooner Muriel.....	Bear River, Nova Scotia.....	1
Do...	Steamship Admiral Schley.....	Port Antonio, Jamaica.....	0
Sept. 14	Schooner I. V. Dexter.....	Liverpool, Nova Scotia.....	29
Do...	Steamship Pro Patria.....	St. Pierre, Miquelon.....	7
Do...	Steamship Hibernian.....	Glasgow, Scotland.....	3
Do...	Steamship Prince George.....	Yarmouth, Nova Scotia.....	70
Do...	Steamship Yarmouth.....	do.....	112
Do...	Steamship La Grande Duchesse.....	Halifax, Nova Scotia.....	203
Do...	Schooner Lizzie Dyas.....	Chinch Point, Nova Scotia.....	1
Sept. 15	Steamship Prince Arthur.....	Yarmouth, Nova Scotia.....	37
Do...	Steamship Sylvia.....	Liverpool, England.....	2
Do...	Schooner Vesta Pearl.....	Clementsport, Nova Scotia.....	1
Do...	Schooner Neretto.....	River Herbert, Nova Scotia.....	2
Do...	Schooner E. Norris.....	Bear River, Nova Scotia.....	2
Sept. 16	Steamship Prince George.....	Yarmouth, Nova Scotia.....	61
Do...	Steamship Boston.....	do.....	101
Do...	Schooner W. K. Smith.....	Weymouth, Nova Scotia.....	1
Total.....			1,289

GEORGE B. BILLINGS,
*Commissioner.**Report of immigration at New York for the week ended September 9, 1899.*OFFICE OF U. S. COMMISSIONER OF IMMIGRATION,
*Port of New York, September 12, 1899.**Number of alien immigrants who arrived at this port during the week ended September 9, 1899
also names of vessels and ports from which they came.*

Date.	Vessel.	Where from.	No. of immigrants.
Sept. 3	Steamship La Champagne.....	Havre.....	408
Do...	Steamship Statendam.....	Rotterdam.....	673
Sept. 5	Steamship State of Nebraska.....	Glasgow.....	42
Do...	Steamship City of Rome.....	do.....	244
Do...	Steamship Chateau Yquem.....	Marseilles and Naples.....	439
Do...	Steamship Frederick der Grosse.....	Bremen.....	531
Do...	Steamship Kaiser Wilhelm der Grosse.....	do.....	494
Sept. 6	Steamship Westernland.....	Antwerp.....	621
Do...	Steamship Ems.....	Genoa and Naples.....	724
Sept. 7	Steamship Servia.....	Liverpool and Queenstown.....	134
Do...	Steamship Coleridge.....	Rio de Janeiro.....	23
Sept. 8	Steamship Columbia.....	Hamburg.....	90
Do...	Steamship Germanic.....	Liverpool and Queenstown.....	309
Sept. 9	Steamship Peninsular.....	Lisbon and the Azores.....	120
Do...	Steamship Thingvalla.....	Copenhagen, etc.....	127
Do...	Steamship Pretoria.....	Hamburg.....	338
Total.....			5,317

J. J. QUINLAN,
Acting Commissioner.

*Report of immigration at New York for the week ended September 16, 1899.*OFFICE OF U. S. COMMISSIONER OF IMMIGRATION,
*Port of New York, September 18, 1899.**Number of alien immigrants who arrived at this port during the week ended September 16, 1899;
also names of vessels and ports from which they came.*

Date.	Vessel.	Where from.	No. of immigrants.
Sept. 10	Steamship Umbria	Liverpool and Queenstown	96
Do....	Steamship New York	Southampton	239
Do....	Steamship La Gascogne.....	Havre.....	374
Sept. 11	Steamship Maasdam.....	Rotterdam.....	458
Do....	Steamship Cymric.....	Liverpool and Queenstown	295
Do....	Steamship Laurentian	Glasgow	25
Sept. 12	Steamship Anchoria.....	do.....	94
Do....	Steamship Kensington.....	Antwerp	418
Sept. 13	Steamship Tartar Prince.....	Genoa and Naples.....	832
Do....	Steamship Brasilia.....	Hamburg	56
Do....	Steamship Oceanic.....	Liverpool and Queenstown.....	607
Sept. 14	Steamship Trave.....	Bremen	222
Do....	Steamship Barcelona	Hamburg.....	88
Do....	Steamship Bremen.....	Bremen.....	597
Sept. 15	Steamship Patria.....	Hamburg.....	205
Do....	Steamship Furst Bismarck	do.....	195
Sept. 16	Steamship St. Louis.....	Southampton.....	445
Total.....			5,246

THOMAS FITCHIE,
*Commissioner.**Report of immigration at Philadelphia for the week ended September 16, 1899.*OFFICE OF U. S. COMMISSIONER OF IMMIGRATION,
*Port of Philadelphia, September 18, 1899.**Number of alien immigrants who arrived at this port during the week ended September 16, 1899; also names of vessels and ports from which they came.*

Date.	Vessel.	Where from.	No. of immigrants.
Sept. 10	Steamship Wae-land.....	Liverpool and Queenstown.....	219
Sept. 14	Steamship Nederland.....	Antwerp.....	137
Do....	Steamship Lucillene.....	Liverpool.....	1
Sept. 15	Steamship Siberian.....	Glasgow.....	5
Total.....			262

JNO. J. S. RODGERS,
Commissioner.

REPORTS FROM NATIONAL QUARANTINE

Number.	Name of station.	Week ended.	Name of vessel.	Date of arrival.	Port of departure.
	UNITED STATES:				
1	Alexandria, Va.....	Sept. 16			
2	Beaufort, N. C.....	do.....			
3	Brunswick, Ga.....	do.....			
4	Cape Charles, Va.....	do.....			
5	Cape Fear, N. C.....	do.....			
6	Columbia River, Oreg.....	Sept. 9			
7	Delaware Breakwater Quarantine, Lewes, Del.	do.....			
		Sept. 16			
8	Eureka, Cal.....	Sept. 9			
9	Grays Harbor, Wash.....	do.....			
10	Gulf Quarantine, Ship Island, Miss.	do.....	Sp. ss. Mayo (a).....	Aug. 28	Vera Cruz.....
			Am. sc. L. N. Dantzler (a).....	Aug. 29	Coatzacoalcas.....
			Nor. bk. Urania (a).....	do.....	Rio de Janeiro.....
			Am. sc. H. J. Powell (a).....	Aug. 30	Manzanillo.....
			Am. sc. Asa T. Stowell (a).....	do.....	do.....
			Am. bktn. Shawmut (a).....	do.....	Kingston, Jama- ica.....
			Rus. ss. Sturton (a).....	do.....	Tampico.....
			Br. sc. Anita (a).....	Sept. 1	Caibarien.....
			Am. sc. Nan M. Dant- zler (a).....	do.....	Vera Cruz.....
			Am. bktn. J. B. Rabel.....	Sept. 3	Rio de Janeiro.....
			Br. sc. Svanara.....	Sept. 7	Kingston, Jama- ica.....
11	Newbern, N. C.....	Sept. 16			
12	Pascagoula, Miss.....	do.....			
13	Port Townsend, Wash.....	Sept. 9			
14	Reedy Island Quarantine, Del.	Sept. 16			
15	San Diego, Cal.....	Sept. 9			
16	San Francisco, Cal.....	do.....			
17	Savannah, Ga.....	do.....	Nor. bk. Kepha (a).....	Aug. 30	Maranhao.....
			Br. ss. Vizcaina.....	Aug. 5	Antigua.....
18	South Atlantic Quar- antine, Blackbeard Island, Ga.	Sept. 16	Nor. s. Noreg (a).....	Sept. 3	Rio de Janeiro.....
			Nor. bk. Dina (a).....	Sept. 4	Para.....
			U. S. tug Nezinscot (a).....	Sept. 6	Key West.....
			Nor. bk. Berghot (a).....	Sept. 8	Para.....
			Am. sc. Isaac N. Kerlin.....	Sept. 12	Key West.....
19	Tortugas Quarantine, Key West, Fla.	Sept. 9			
20	Washington, N. C.....	Sept. 16			
21	CUBA:				
22	Caibarien.....	Sept. 9			
23	Cardenas.....	do.....			
24	Olenfuegos.....	do.....			
25					
26	Daiquiri.....	Sept. 2			
27	Gibara.....	Aug. 26			
	Quantanamo.....	do.....			
	Havana.....	Sept. 9	Am. sc. Montana.....	Sept. 2	Port Tampa.....
			Am. sc. J. Percy Bartram.....	do.....	Newport News.....
			Am. bge. Highlander.....	Sept. 5	Havana.....
			Am. tug Dauntless.....	Sept. 6	do.....
			Am. sc. Davy Crockett.....	Sept. 7	Pensacola.....
			U. S. transport Ingalls.....	do.....	Havana.....
			Cuban bge. Pizano.....	do.....	do.....
			Nor. ss. Panan.....	do.....	Brunswick.....
			U. S. transport Ingalls.....	Sept. 7	Havana.....
			Army barge Henry L. Gregg.....	Sept. 9	do.....
28	Isabela de Sagua.....	Sept. 9	America.....	Sept. 5	Cardenas.....
29	Manzanillo.....	Sept. 2			
30	Matanzas.....	Sept. 9			
31	Nuevitas.....	do.....			
32	Santiago de Cuba.....	Sept. 2			

a Previously reported.

AND INSPECTION STATIONS.

Number.	Destination.	Treatment of vessel, passengers, and cargo.	Date of departure.	Remarks.	Vessels inspected and passed.
1				No transactions.....	
2				No report.....	
3				do.....	
4					14
5					2
6				No transactions.....	
7					9
8					13
9				No transactions.....	
10	Mobile.....	Disinfected and held.....	Sept. 8	1 case yellow fever in quarantine.	2
	Scranton.....	do.....	Sept. 3		
	Ship Island.....	do.....	Sept. 4		
	Pascagoula.....	do.....	do.....		
	do.....	do.....	Sept. 7		
	do.....	do.....	Sept. 5		
	do.....	do.....	Sept. 6		
	do.....	do.....	do.....		
	Apalachicola.....	do.....	Sept. 9		
	Pascagoula.....	do.....	do.....		
11				No transactions.....	
12					5
13					4
14				1 case measles at sea on ss. Nederland from Antwerp.	28
15					6
16				2 deaths from tuberculosis and 1 death from enteric fever on U. S. transport Sheridan from Manila.	24
17	Savannah.....	Disinfected and held.....	Sept. 7		
	do.....	do.....		Suspected.....	8
18	Sapelo.....	Disinfected and held; ballast discharged.	Sept. 16		
	Brunswick.....	do.....			
	Orders.....	do.....	Sept. 12		
	Sapelo.....	do.....			
	Jacksonville.....	Disinfected and held; ballast discharged.			
19				No report.....	
20				No transactions.....	
21					7
22					7
23				1 case malarial fever on Br. ss. Aldborough from Colon.	14
24				No report.....	
25				do.....	
26				do.....	
27		Disinfected.....	Sept. 3		22
	Wilmington.....	do.....	do.....		
	Tampa.....	do.....	Sept. 6		
	do.....	do.....	do.....		
	Pascagoula.....	do.....	Sept. 8		
	Havana.....	Disinfected and held.....		1 case yellow fever.....	
	do.....	Disinfected.....	Sept. 7		
	Mobile.....	do.....	Sept. 8		
	Havana.....	Disinfected and held.....		Redisinfected.....	
	Tortugas.....	Disinfected.....		Ordered to Tortugas for disinfection; been in Havana harbor 6 weeks.	
28	Isabela de Sagua.....	Held 24 hours.....			18
29					10
30					8
31				No report.....	
32					12

REPORTS FROM NATIONAL QUARANTINE

Number.	Name of station.	Week ended.	Name of vessel.	Date of arrival.	Port of departure.
	PORTO RICO:				
33	Ponce.....	do.....			
34	San Juan.....	Sept. 9	Sp. str. Leon XIII.....	Sept. 3	Havana.....

REPORTS FROM STATE AND

Number.	Name of station.	Week ended.	Name of vessel.	Date of arrival.	Port of departure.
1	Anclote, Fla.....	Sept. 16			
2	Baltimore, Md.....	do.....			
3	Bangor, Me.....	do.....			
4	Boston, Mass.....	do.....			
5	Carrabelle, Fla.....	do.....			
6	Cedar Keys, Fla.....	Sept. 9			
7	Charleston, S. C.....	Sept. 16	Am. sc. J. P. Bartram..... U. S. tug Reno.....	Sept. 15 Sept. 16	Havana..... do.....
8	Charlotte Harbor, Fla.....	Sept. 9			
9	Elizabeth River, Va.....	Sept. 16			
10	Galveston, Tex.....	Sept. 9	Br. ss. Cynthia..... Gersemore..... Br. ss. Explorer..... Dominic..... Br. ss. Anselma de Lar- rinaga.....	Sept. 4 Sept. 8 do..... Sept. 9 do.....	St. Vincent..... St. Lucia..... Pernambuco..... Ceara..... Cienfuegos.....
11	Gardiner, Oreg.....	do.....			
12	Key West, Monroe Co., Fla.....	Sept. 16			
13	Los Angeles, Cal.....	Sept. 9			
14	Mayport, Fla.....	Sept. 16			
15	Mobile Bay, Ala.....	Sept. 9	Am. bktn. Daisy Read (a) Br. ss. Arecuna..... U. S. L. H. ss. Pansy.....	Aug. 29 Sept. 4 Sept. 8	Bahia..... Tampico..... New Orleans.....
		Sept. 16	Br. ss. Widdrington..... Nor. ss. Normandie..... Sc. Gertrude A. Bartlett..... Br. ss. Arecuna (a)..... U. S. L. H. ss. Pansy (a)..... Nor. ss. Normandie (a)..... Sc. Gertrude A. Bartlett..... Nor. ss. Parran..... Nor. ss. Boralon..... Nor. ss. Helios..... Ss. Seaboard..... Br. bk. Lancashire..... U. S. ss. Winona.....	Sept. 5 Sept. 8 Sept. 9 Sept. 4 Sept. 8 do..... Sept. 9 Sept. 11 Sept. 14 do..... do..... Sept. 16 Sept. 14	Havana..... Progreso..... do..... Tampico..... New Orleans..... Progreso..... do..... Havana..... Bocas del Toro..... Havana..... Tampa..... Kingston..... Biloxi.....
16	New Bedford, Mass.....	Sept. 16			
17	New Orleans, La.....	do.....			
18	Newport News, Va.....	do.....			
19	Newport, R. I.....	do.....			
20	New York, N. Y.....	do.....			
21	Pasas Cavallo, Tex.....	do.....			
22	Pensacola, Fla.....	do.....			
23	Port Royal, S. C.....	do.....			
24	Providence, R. I.....	do.....			
25	Quintana, Tex.....	Sept. 9			
26	St. Helena Entrance, S. C.....	Sept. 16			
27	San Pedro, Cal.....	Sept. 9			
28	Tampa Bay, Fla.....	Sept. 16			

a Previously reported.

AND INSPECTION STATIONS—Continued.

Number.	Destination.	Treatment of vessel, passengers, and cargo.	Date of departure.	Remarks.	Vessels inspected and passed.
33	.....	.....	.....	.....	3
34	Santander.....	Detained to complete period; baggage, 2 local passengers disinfected.	.....	.....	8

MUNICIPAL QUARANTINE STATIONS.

Number.	Destination.	Treatment of vessel, passengers, and cargo.	Date of departure.	Remarks.	Vessels inspected and passed.
1	.....	.....	.....	No report.....	.....
2	.....	.....	.....	do.....	.....
3	.....	.....	.....	do.....	.....
4	.....	.....	.....	do.....	.....
5	.....	.....	.....	do.....	.....
6	.....	.....	.....	do.....	.....
7	Wilmington..... New York.....	Detained..... Detained; will proceed to sea from quarantine.	.....	.....	1
8	.....	.....	.....	No report.....	.....
9	.....	.....	.....	do.....	9
10	Galveston.....	Fumigated and held.....	Sept. 5	.....	13
.....	do.....	do.....	.....	.....	.....
.....	do.....	do.....	.....	.....	.....
.....	do.....	do.....	.....	.....	.....
11	.....	.....	.....	No report.....	.....
12	.....	.....	.....	.....	12
13	.....	.....	.....	No transactions.....	.....
14	.....	.....	.....	No report.....	.....
15	Mobile.....	Disinfected and held.....	Sept. 4	.....	10
.....	do.....	do.....	.....	Refused pratique; awaiting orders from Department.	.....
.....	do.....	Held to complete period.....	Sept. 6	.....	.....
.....	do.....	Disinfected and held.....	.....	.....	.....
.....	do.....	do.....	Sept. 10	.....	.....
.....	do.....	do.....	Sept. 14	Without pratique; left for Mississippi Sound.	.....
.....	do.....	Disinfected and held.....	Sept. 12	.....	.....
.....	do.....	do.....	Sept. 14	.....	.....
.....	do.....	Held to complete period.....	Sept. 12	.....	.....
.....	do.....	do.....	Sept. 14	2 cases of fever; vessel left for New Orleans too early to make diagnosis.	.....
.....	do.....	Held to complete period.....	Sept. 16	.....	.....
.....	do.....	do.....	do.....	Refused pratique; took cargo at station.	.....
.....	Mobile.....	Held for disinfection.....	Sept. 16	.....	.....
.....	do.....	.....	.....	Refused pratique, but released under instructions from Mobile.	.....
16	.....	.....	.....	No report.....	.....
17	.....	.....	.....	do.....	.....
18	.....	.....	.....	do.....	.....
19	.....	.....	.....	do.....	.....
20	.....	.....	.....	do.....	.....
21	.....	.....	.....	do.....	.....
22	.....	.....	.....	do.....	.....
23	.....	.....	.....	do.....	1
24	.....	.....	.....	No transactions.....	.....
25	.....	.....	.....	.....	4
26	.....	.....	.....	No report.....	.....
27	.....	.....	.....	do.....	.....
28	.....	.....	.....	do.....	.....

Reports of States and yearly and monthly reports of cities of the United States.

CALIFORNIA—*Los Angeles*.—Month of August, 1899. Estimated population, 103,000. Total number of deaths, 92, including enteric fever, 4; whooping cough, 1, and 4 from cerebro-spinal meningitis.

Oakland.—Month of August, 1899. Estimated population, 75,000. Total number of deaths, 80, including diphtheria, 1; enteric fever, 1, and 9 from phthisis pulmonalis.

Sacramento.—Month of August, 1899. Estimated population, 30,000. Total number of deaths, 23, including 4 from phthisis pulmonalis.

COLORADO—*Denver*.—Month of August, 1899. Estimated population, 170,000. Total number of deaths, 183, including diphtheria, 2; enteric fever, 10; whooping cough, 3; cerebro-spinal meningitis, 2, and 35 from phthisis pulmonalis.

CONNECTICUT.—Reports to the State board of health for the month of August, 1899, from 167 towns, having an aggregate estimated population of 911,524, show a total of 1,382 deaths, including diphtheria, 10; enteric fever, 21; measles, 1; scarlet fever, 4; whooping cough, 15; cerebro-spinal meningitis, 6, and 114 from phthisis pulmonalis.

Hartford.—Month of August, 1899. Census population, 53,230. Total number of deaths, 147, including diphtheria, 6; enteric fever, 2; scarlet fever, 1; whooping cough, 2, and 15 from phthisis pulmonalis.

IOWA—*Davenport*.—Month of August, 1899. Estimated population, 40,000. Total number of deaths, 40, including enteric fever, 1, and 6 from phthisis pulmonalis.

Dubuque.—Month of August, 1899. Estimated population, 45,000. Total number of deaths, 25, including diphtheria, 1; enteric fever, 2, and 3 from phthisis pulmonalis.

LOUISIANA—*New Orleans*.—Month of August, 1899. Estimated population, 300,000; white, 210,000; colored, 90,000. Total number of deaths, 532: white, 335; colored, 197, including enteric fever, 15; measles, 1; whooping cough, 2; cerebro-spinal meningitis, 3, and 59 from phthisis pulmonalis.

MASSACHUSETTS—*Brockton*.—Month of August, 1899. Estimated population, 37,278. Total number of deaths, 32, including spinal meningitis, 2, and 3 from phthisis pulmonalis.

Fitchburg.—Month of August, 1899. Estimated population, 29,000. Total number of deaths, 47, including diphtheria, 1; enteric fever, 1, and 4 from phthisis pulmonalis.

Lawrence.—Month of August, 1899. Estimated population, 58,500. Total number of deaths, 126, including diphtheria, 4; whooping 1, and 9 from phthisis pulmonalis.

MICHIGAN.—Reports to the State board of health, Lansing, for the week ended September 9, 1899, from 71 observers, indicate that intermittent fever decreased in area of prevalence. Phthisis pulmonalis was reported present at 199, enteric fever at 88, scarlet fever at 36,

diphtheria at 19, whooping cough at 15, measles at 13, cerebro-spinal meningitis at 2, and smallpox at 1 place—Maple Grove.

MINNESOTA—*Duluth*.—Month of May, 1899. Estimated population, 60,000. Total number of deaths, 45, including whooping cough, 1; cerebro-spinal meningitis, 1, and 4 from phthisis pulmonalis.

Month of June, 1899. Total number of deaths, 37, including enteric fever, 1, and 5 from phthisis pulmonalis.

Month of July, 1899. Total number of deaths, 29, including 1 from phthisis pulmonalis.

St. Paul.—Month of August, 1899. Estimated population, 200,000. Total number of deaths, 102, including diphtheria, 1; enteric fever, 3; scarlet fever, 1; whooping cough, 1, and 14 from phthisis pulmonalis.

NEW HAMPSHIRE—*Manchester*.—Month of August, 1899. Estimated population, 60,000. Total number of deaths, 97, including diphtheria, 1; whooping cough, 1, and 2 from phthisis pulmonalis.

NEW YORK—*Buffalo*.—Month of August, 1899. Estimated population, 370,000. Total number of deaths, 425, including diphtheria, 4; enteric fever, 14; measles, 1; whooping cough, 6; scarlet fever, 1; cerebro-spinal meningitis, 3, and 38 from phthisis pulmonalis.

OHIO—*Cleveland*.—Month of August, 1899. Estimated population, 395,000. Total number of deaths, 457, including diphtheria, 4; enteric fever, 10; scarlet fever, 1; whooping cough, 2; cerebro-spinal meningitis, 2, and 21 from phthisis pulmonalis.

Toledo.—Month of August, 1899. Estimated population, 150,000. Total number of deaths, 176, including diphtheria, 13; enteric fever, 5; scarlet fever, 3; whooping cough, 1, and 16 from phthisis pulmonalis.

TENNESSEE—*Chattanooga*.—Month of August, 1899. Estimated population, 40,000. Total number of deaths not reported. Five deaths from enteric fever.

TEXAS—*San Antonio*.—Month of August, 1899. Estimated population, 63,000. Total number of deaths, 125, including diphtheria, 1; enteric fever, 9; measles, 1; scarlet fever, 1; phthisis pulmonalis, 16, and 1 from smallpox.

VIRGINIA—*Petersburg*.—Month of July, 1899. Estimated population, 25,000. Total number of deaths, 57, including 4 from enteric fever.

Month of August. Estimated population, 25,000. Total number of deaths, 52, including enteric fever, 3, and 4 from phthisis pulmonalis.

WASHINGTON—*Seattle*.—Month of August, 1899. Estimated population, 75,000. Total number of deaths, 44, including diphtheria, 2; enteric fever, 3, and 2 from phthisis pulmonalis.

Tacoma.—Month of August, 1899. Estimated population, 50,000. Total number of deaths, 21, including diphtheria, 1, and 2 from phthisis pulmonalis.

MORTALITY TABLE, CITIES OF THE UNITED STATES.

Cities.	Week ended.	Population, U. S. Census of 1890.	Total deaths from all causes.	Deaths from—									
				Tuberculosis.	Yellow fever.	Smallpox.	Variceloid.	Cholera.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.
Allegheny, Pa.	Aug. 26.	105,287	37	2						3		2	
Do.	Sept. 2.	105,287	27	5							1		
Do.	Sept. 9.	105,287	39							4			1
Do.	Sept. 16.	105,287	43	4						3			
Allentown, Pa.	Sept. 2.	25,228	15	1						2			
Do.	Sept. 9.	25,228	7										
Altoona, Pa.	do.	30,337	11	1									
Amesbury, Mass.	Sept. 16.	9,798	3							1	1		
Baltimore, Md.	do.	434,439	179						6			7	
Bay City, Mich.	Sept. 9.	27,839	12	1									
Do.	Sept. 16.	27,839	6										
Binghamton, N. Y.	do.	35,005	18									2	
Boston, Mass.	do.	448,477	222	23						10	2	7	3
Bristol, R. I.	do.	5,478	2										
Brookton, Mass.	Sept. 2.	27,294	3										
Do.	Sept. 9.	27,294	5										
Bucyrus, Ohio.	Sept. 16.	5,974	3										
Cambridge, Mass.	do.	70,028	25	3									1
Charleston, S. C.	Sept. 9.	54,955	29	4								1	1
Chillicothe, Mass.	Sept. 16.	14,050	12	2									
Chillicothe, Ohio.	Sept. 9.	11,288	6										
Cincinnati, Ohio.	do.	296,908		16						1	1	1	
Do.	Sept. 16.	296,908		7									
Cleveland, Ohio.	Sept. 9.	261,353	105	4						2		1	
Do.	Sept. 16.	261,353	85	3						2	1	2	1
Concord, N. H.	Sept. 9.	17,044	5										
Dayton, Ohio.	Sept. 16.	61,220	20	1									
Detroit, Mich.	Sept. 15.	205,876	67	6						1			
Dubois, Pa.	Sept. 9.	6,149	3									1	
Do.	Sept. 16.	6,149	2										
Dunkirk, N. Y.	Sept. 9.	9,416	0										
Dunmore, Pa.	Sept. 2.	8,315	3										
Elmira, N. Y.	Sept. 9.	29,708	6									2	
Erie, Pa.	do.	40,634	12	1									
Evansville, Ind.	Sept. 16.	50,756	10	2									
Fall River, Mass.	Sept. 9.	74,398											
Do.	Sept. 16.	74,398	48	6						1			
Fitchburg, Mass.	Sept. 9.	22,037	12							1			
Green Bay, Wis.	Sept. 10.	9,069	5										
Do.	Sept. 17.	9,069	7										
Greenville, S. C.	Sept. 2.	8,607	6	2									
Do.	Sept. 9.	8,607	3										
Do.	Sept. 16.	8,607	7	3									
Hoboken, N. J.	Sept. 9.	43,648	14	1						1			
Do.	Sept. 16.	43,648	25	2						2			
Holyoke, Mass.	do.	35,637	16	1									1
Honolulu, Hawaii.	Aug. 26.	35,000	26							1			
Do.	Sept. 2.	35,000	16							1			
Jersey City, N. J.	Sept. 10.	163,003	66	6						2			
Lancaster, Pa.	Sept. 9.	32,011	10	1								1	3
Do.	Sept. 16.	32,011	9	2						1			
Lawrence, Mass.	Sept. 9.	44,654	29										
Los Angeles, Cal.	do.	50,395	26	8									
Louisville, Ky.	Sept. 15.	161,129	48	7						6			
Lowell, Mass.	do.	77,696	35	4							1		1
Lynchburg, Va.	do.	19,709	7										
McKeesport, Pa.	Sept. 12.	20,741	8							1			
Mahanoj City, Pa.	Sept. 16.	11,286	3										
Malden, Mass.	do.	23,031	11										
Manchester, N. H.	do.	44,126	22	1						1			
Massillon, Ohio.	Sept. 15.	10,092	2										
Medford, Mass.	Sept. 16.	11,079	2										
Melrose, Mass.	Sept. 9.	8,519	3										
Memphis, Tenn.	do.	64,495	51	2						1			
Michigan City, Ind.	Sept. 16.	10,776	2										
Milwaukee, Wis.	Sept. 9.	204,468	69	6						2	1	2	
Do.	Sept. 16.	204,468	61	5							1	4	
Minneapolis, Minn.	Sept. 9.	164,738	27	8									
Mobile, Ala.	Sept. 16.	31,076	10	3									
Nashville, Tenn.	do.	76,168	41	5						1		1	
New Bedford, Mass.	do.	40,733	17	2						1			
New Orleans, La.	Sept. 9.	242,039	111	14						1	4		

a Estimated population, 65,165—white, 28,870; colored, 36,295.

b White, 10; colored, 19.

MORTALITY TABLE, CITIES OF THE UNITED STATES—Continued.

Cities.	Week ended.	Population U. S. census of 1890.	Total deaths from all causes.	Deaths from—									
				Tuberculosis.	Yellow fever.	Smallpox.	Variceloid.	Cholera.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles. Whooping cough.
Newton, Mass.	Sept. 16.	24, 379	10	1									
New York, N. Y.	do.	3, 550, 063	1, 124	117						16	4	15	6 10
North Adams, Mass.	do.	16, 074	3										
Omaha, Nebr.	Sept. 9.	140, 452	32									1	
Oneonta, N. Y.	Sept. 16.	6, 272	0										
Petersburg, Va.	Sept. 10.	22, 680	5	1									
Do.	Sept. 17.	22, 680	5	1									
Philadelphia, Pa.	do.	1, 046, 964	364							12	2	11	5
Pittsburg, Pa.	Sept. 9.	238, 617	114	5						10	1	2	1
Pittsfield, Mass.	do.	17, 281	8	1									
Do.	Sept. 16.	17, 281	3										
Pittston, Pa.	do.	10, 302	2										
Plainfield, N. J.	do.	11, 267	3	2									
Portland, Me.	Sept. 9.	36, 425	20	3									
Do.	Sept. 16.	36, 425	17	2								1	
Portsmouth, Va.	do.	13, 268	3									2	
Pottstown, Pa.	July 8.	13, 285	2										
Do.	July 15.	13, 285	1										
Do.	July 22.	13, 285	5										
Do.	July 29.	13, 285	4	2									
Do.	Aug. 5.	13, 285	5										
Do.	Aug. 12.	13, 285	2										
Do.	Aug. 19.	13, 285	4										
Do.	Aug. 26.	13, 285	3						1				
Do.	Sept. 2.	13, 285	8										
Do.	Sept. 9.	13, 285	6	1					1				
Do.	Sept. 16.	13, 285	1										
Providence, R. I.	do.	132, 146	64	10					3			1	1
Reading, Pa.	Sept. 18.	58, 661	21	2					3			1	
Sabine Pass, Tex.	Sept. 9.	567	0										
Salt Lake City, Utah.	do.	44, 843	15	1									
Do.	Sept. 16.	44, 843	15										1
San Diego, Cal.	Sept. 9.	16, 159	2										
San Jose, Cal.	do.	18, 060	3										
Scranton, Pa.	Sept. 16.	75, 215	41									2	
Seattle, Wash.	Aug. 26.	42, 837	13	2									
Do.	Sept. 2.	42, 837	11	1									
Do.	Sept. 9.	42, 837	14	2									
Shreveport, La.	Sept. 16.	11, 979	6							2			
Somerville, Mass.	do.	40, 152	14										
Steelton, Pa.	do.	9, 250	6	2									
Tacoma, Wash.	Sept. 9.	36, 006	5										
Taunton, Mass.	do.	25, 448	6										
Do.	Sept. 16.	25, 448	5										
Waltham, Mass.	Sept. 9.	18, 707	4										
Do.	Sept. 16.	18, 707	3										
Warren, Ohio.	do.	5, 973	1										
Washington, D. C.	Sept. 9.	230, 392	117	9					10	1	5		
West Tampa, Fla.	do.	4, 000	0										
Wheeling, W. Va.	do.	35, 013	5	1							1		
Wichita, Kans.	do.	23, 853	9										
Do.	Sept. 16.	23, 853	2										
Wilmington, Del.	do.	61, 431	29	6							1	2	
Winona, Minn.	Sept. 9.	18, 208	8										
Woburn, Mass.	June 24.	13, 449	3										
Do.	July 1.	13, 449	3	1									
Do.	July 8.	13, 449	2										
Do.	July 15.	13, 449	5										
Do.	July 22.	13, 449	6	1									
Do.	July 29.	13, 449	11	1									
Do.	Aug. 5.	13, 449	2										
Do.	Aug. 12.	13, 449	7	1									
Do.	Aug. 19.	13, 449	10	2									1
Do.	Aug. 26.	13, 449	8										
Do.	Sept. 2.	13, 449	8	1									
Do.	Sept. 9.	13, 449	36	4					1				
Youngstown, Ohio.	Sept. 16.	83, 220	5										

a Estimated.

Table of temperature and rainfall, week ended September 22, 1899.

[Received from Department of Agriculture, Weather Bureau.]

Locality.	Temperature in degrees Fahrenheit.			Rainfall in inches and hundredths.		
	Normal.	Excess.	Deficiency.	Normal.	Excess.	Deficiency.
Atlantic Coast:						
Eastport, Me.....	56		4	.76		.76
Portland, Me.....	60		6	.70		.50
Northfield, Vt.....	57		5	.64		.64
Boston, Mass.....	63		5	.58		.38
Vineyard Haven, Mass.....	64		4	.98	.02	
Nantucket, Mass.....	64		4	.77	.73	
Woods Hole, Mass.....	64		4	.70	.80	
Block Island, R. I.....	64		4	.63	.57	
New Haven, Conn.....	64		6	.84		.54
Albany, N. Y.....	64		2	.78		.78
New York, N. Y.....	66		2	.84	.06	
Harrisburg, Pa.....	65		3	.98		.78
Philadelphia, Pa.....	67		3	.77		.37
New Brunswick, N. J.....	67		7	.80	1.40	
Atlantic City, N. J.....	68		4	.84	3.06	
Baltimore, Md.....	68		4	.93		.73
Washington, D. C.....	68		6	.87		.23
Lynchburg, Va.....	69		5	.91		.71
Cape Henry, Va.....	72	0		1.05		.95
Norfolk, Va.....	72		2	1.05		.95
Charlotte, N. C.....	72		2	.72		.72
Raleigh, N. C.....	72		4	.75		.45
Kittyhawk, N. C.....	74		2	1.08		.98
Hatteras, N. C.....	74			1.54		
Wilmington, N. C.....	74		2	1.51		1.51
Columbia, S. C.....	74	0		.96		.96
Charleston, S. C.....	77	1		1.57		1.17
Augusta, Ga.....	75	1		.95		.95
Savannah, Ga.....	77	1		1.45	2.65	
Jacksonville, Fla.....	78	0		2.30	1.50	
Jupiter, Fla.....	80	0		2.29	2.89	
Key West, Fla.....	83		1	1.81		.81
Gulf States:						
Atlanta, Ga.....	72	0		.88		.88
Tampa, Fla.....	80	0		1.47	1.33	
Pensacola, Fla.....	79	1		1.11		.71
Mobile, Ala.....	77	3		1.24		1.24
Montgomery, Ala.....	76	2		.70		.70
Vicksburg, Miss.....	76	2		.87		.87
New Orleans, La.....	79	1		1.05		.85
Shreveport, La.....	76	2		.96		.66
Fort Smith, Ark.....	74	0		.84		.54
Little Rock, Ark.....	74	0		.75	.75	
Palestine, Tex.....	77	3		.77		.47
Galveston, Tex.....	79	5		1.53		1.53
San Antonio, Tex.....	78	4		.82		.32
Corpus Christi, Tex.....	79	1		1.23		1.03
Ohio Valley and Tennessee:						
Memphis, Tenn.....	72	2		.71		.61
Nashville, Tenn.....	71	1		1.02		1.02
Chattanooga, Tenn.....	71	1		.91		.91
Knoxville, Tenn.....	70	0		.63		.33
Louisville, Ky.....	69	1		.67		.67
Indianapolis, Ind.....	66	0		.70		.30
Cincinnati, Ohio.....	68	0		.65		.55
Columbus, Ohio.....	66	0		.63		.63
Parkersburg, W. Va.....	68		4	.75		.75
Pittsburg, Pa.....	67		3	.61		.61
Lake Region:						
Oswego, N. Y.....	62	2		.63		.63
Rochester, N. Y.....	62	2		.50		.40
Buffalo, N. Y.....	62	0		.77		.67
Erie, Pa.....	64	2		.91		.97
Cleveland, Ohio.....	64	2		.84		.84
Sandusky, Ohio.....	65	1		.67		.67
Toledo, Ohio.....	64	0		.56		.36
Detroit, Mich.....	63	1		.56		.36
Lansing, Mich.....	62	2		.77		.27
Port Huron, Mich.....	62	0		.63		.63
Alpena, Mich.....	57	1		.90		.20
Sault Ste. Marie, Mich.....	54	2		1.12		.72
Marquette, Mich.....	56	2		.95		.75
Green Bay, Wis.....	58	0		.76		.56

a The figures in these columns represent the average daily departure.

Table of temperature and rainfall, week ended September 22, 1899—Continued.

Locality.	Temperature in degrees Fahrenheit.			Rainfall in inches and hundredths.		
	Normal.	a Excess.	a Deficiency.	Normal.	Excess.	Deficiency.
Lake Region—Continued.						
Grand Haven, Mich.....	60		2	.84		.44
Milwaukee, Wis.....	61	3		.70	.00	
Chicago, Ill.....	64	0		.65	.05	
Duluth, Minn.....	56	0		.95		.75
Upper Mississippi Valley:						
St. Paul, Minn.....	60		2	.70		.50
La Crosse, Wis.....	61		1	1.05		.75
Dubuque, Iowa.....	63	1		1.07		.77
Davenport, Iowa.....	64	0		.77		.27
Des Moines, Iowa.....	64	0		.77		.77
Keokuk, Iowa.....	66		2	.90		.30
Hannibal, Mo.....	68		2	.59	1.41	
Springfield, Ill.....	67		1	.77	.53	
Cairo, Ill.....	70	2		.56	.04	
St. Louis, Mo.....	69	1		.71	.09	
Missouri Valley:						
Columbia, Mo.....	69		3	.97	1.43	
Springfield, Mo.....	69	1		1.04		.04
Kansas City, Mo.....	68	0		.81		.31
Topeka, Kans.....	71		3	.61	.09	
Wichita, Kans.....	71		1	.63	.27	
Concordia, Kans.....	68	0		.56		.16
Lincoln, Nebr.....	66	0		.42		.42
Omaha, Nebr.....	65		1	.70		.70
Sioux City, Iowa.....	66		4	.28		.28
Yankton, S. Dak.....	62	2		.70		.70
Valentine, Nebr.....	61	3		.21		.21
Huron, S. Dak.....	60	0		.53		.13
Pierre, S. Dak.....	63	1		.21	1.29	
Moorhead, Minn.....	56	2		.49	.11	
Bismarck, N. Dak.....	57	3		.28		.28
Williston, N. Dak.....	56	2		.21		.21
Rocky Mountain Region:						
Havre, Mont.....	56	2		.28		.18
Helena, Mont.....	56	2		.28		.18
Miles City, Mont.....	60	2		.17		.07
Rapid City, S. Dak.....	61	1		.09	.71	
Spokane, Wash.....	58	6		.23	.17	
Walla Walla, Wash.....	64			.23		
Baker City, Oreg.....	55	7		.17		.17
Winnemucca, Nev.....	60	0		.07		.07
Boise, Idaho.....	61	5		.08		.08
Salt Lake City, Utah.....	64	0		.21		.21
Lander, Wyo.....	57	1		.14	.36	
Cheyenne, Wyo.....	56	2		.21		.21
North Platte, Nebr.....	64	0		.28		.28
Denver, Colo.....	63	1		.16	.04	
Pueblo, Colo.....	67		1	.07	.53	
Dodge City, Kans.....	68	0		.29	.31	
Oklahoma, Okla.....	72	0		.67	.13	
Amarillo, Tex.....	68		2	.50	.40	
Ablene, Tex.....	77		1	.56		.16
Santa Fe, N. Mex.....	61		1	.35	.65	
El Paso, Tex.....	74	0		.28		.28
Phoenix, Ariz.....	82	4		.14		.14
Pacific Coast:						
Seattle, Wash.....	57	3		.61	.09	
Tacoma, Wash.....	56	4		.59		.59
Fort Canby, Wash.....	57	1		.89		.79
Portland, Oreg.....	61	3		.38		.38
Roseburg, Oreg.....	61	5		.22		.22
Eureka, Cal.....	54	0		.29		.29
Redbluff, Cal.....	74	6		.16		.16
Carson City, Nev.....	61	1		.07		.07
Sacramento, Cal.....	69	7		.07		.07
San Francisco, Cal.....	61		3	.07		.07
Fresno, Cal.....	73	5		.07		.07
San Luis Obispo, Cal.....	63	3		.00	.00	
Los Angeles, Cal.....	69	3		.00	.00	
San Diego, Cal.....	67		1	.00	.00	
Yuma, Ariz.....	85	3		.00	.00	

* The figures in these columns represent the average daily departure.

FOREIGN.

[Reports received from United States consuls through the Department of State and from other sources.]

Cholera, yellow fever, plague, and smallpox as reported to the Supervising Surgeon-General United States Marine-Hospital Service, June 30, 1899, to September 22, 1899.

[For reports received from January 1 to June 30, 1899, see PUBLIC HEALTH REPORTS for June 30.]

CHOLERA.

Places.	Date.	Cases.	Deaths.	Remarks.
India:				
Bombay.....	June 6-Aug. 15...	.....	13	
Calcutta.....	May 13-Aug. 5...	.....	252	
Karachi.....	Aug. 6-Aug. 12...	14	17	
Madras.....	May 20-June 9...	0	9	
Japan:				
Fukuoka Ken.....	July 25-Aug. 20...	1	.....
Kanagawa Ken.....	.....do.....	3	.....
Miye Ken.....	.....do.....	1	.....
Osaka and Hiogo.....	June 10-Aug. 12...	3	2	
Tokyo Fu.....	July 26-Aug. 20...	19	4	
Yokohama.....	July 16-July 29...	2	2	

YELLOW FEVER.

Argentina:				
Buenos Ayres.....	Apr. 1-Apr. 30...	.....	4	
	June 1-June 30...	.....	8	
Brazil:				
Bahia.....	June 3-Aug. 12...	177	85	
Para.....	June 1-June 30...	.....	19	
Rio de Janeiro.....	May 19-July 28...	.....	62	
St. Felix.....	June 7.....	.....	.....	Reported present.
Colombia:				
Barranquilla.....	June 10-June 24...	2	2	
	Aug. 6-Aug. 12...	1	1	
Colon.....	Aug. 28-Sept. 3...	1	1	
Panama.....	June 16-Aug. 8...	88	45	
	Aug. 15-Aug. 29...	16	5	
Costa Rica:				
Alajuela.....	Aug. 4-Aug. 29...	30	15	
Heredia.....	.....do.....	1	.....
Port Limon.....	Aug. 18-Aug. 29...	2	1	
Punta Arenas.....	Aug. 4.....	.....	.....	Yellow fever reported.
Cuba:				
Cienfuegos.....	July 23-July 29...	1	1	Doubtful.
Cristo.....	Aug. 13-Aug. 14...	1	.....
Daiquiri.....	Aug. 27-Sept. 2...	1	.....
Havana.....	June 15-Sept. 7...	102	24	
Manzanillo.....	July 2-Sept. 2...	10	2	
Matanzas.....	June 17-July 27...	2	.....	1 Doubtful.
	Aug. 6-Aug. 12...	1	1	
Puerto Principe.....	To Aug. 9.....	39	13	
Santiago.....	June 10-Sept. 2...	209	46	
Sancti Spiritu.....	Aug. 24.....	2	.....
Mexico:				
Amealco.....	Aug. 24.....	.....	.....	Yellow fever reported.
Chilpanzingo.....	Sept. 14.....	.....	.....	Yellow fever prevalent.
Cinchaapa.....	Aug. 23.....	.....	.....	Yellow fever reported.
Cordoba.....	June 21.....	23	14	
	May 1-Aug. 5...	.....	80	
Cosamaloapam.....	Aug. 21.....	1	.....
Hidalgo.....	Aug. 23.....	.....	.....	Do.
Jalapa.....	Aug. 9.....	.....	5	
Juchitan.....	Aug. 23.....	.....	.....	Do.
Merida.....	July 1.....	1	.....
Orizaba.....	May 1-July 24...	.....	11	
	Aug. 22.....	.....	18	
Progreso.....	July 25.....	2	1	
San Geronimo.....	Aug. 23.....	.....	.....	Do.
San Juan la Junta.....	Aug. 24.....	.....	.....	Do.
San Lorenzo.....	.....do.....	.....	.....	Do.
Tampico.....	July 1-July 7...	1	1	

Cholera, yellow fever, plague, and smallpox, etc.—Continued.

YELLOW FEVER—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
Mexico—Continued.				
Tapona.....	Aug. 23.....			Yellow fever reported.
Tuxpan.....	July 30–Sept. 4.....		36	
Vera Cruz.....	June 15–Sept. 7.....		204	
San Salvador:				
San Salvador.....	June 30–Aug. 1.....	3	1	

PLAGUE.

Arabia:				
Djiddah.....	June 30.....			Plague reported.
China:				
Amoy.....	July 1–Aug. 5.....		500	
Hongkong.....	Apr. 11–Aug. 5.....	1,511	1,449	
Egypt:				
Alexandria.....	May 4–Aug. 27.....	86	41	
French Ivory Coast Colony:				
Grand Bassam.....	June 7.....	200		
India:				
Presidency of Bombay: (a)				
Ahmednugger District.....	Aug. 5–Aug. 11.....	45	31	Total, 1,273 cases; 956 deaths.
Aundh State.....	.....do.....	26	17	Total, 1,951 cases; 1,383 deaths.
Belgaum District.....	.....do.....	750	598	Total, 29,300 cases; 22,042 d'ths.
Baroda Territory.....	.....do.....	29	19	Total, 8,005 cases; 5,982 deaths.
Bijapore District.....	.....do.....	98	82	Total, 2,626 cases; 2,130 deaths.
Broach District.....	.....do.....	37	27	Total, 1,530 cases; 1,146 deaths.
Cutch State.....	.....do.....	29	27	Total, 10,477 cases; 8,634 d'ths.
Dharwar District.....	.....do.....	143	95	Total, 38,754 cases; 31,307 d'ths.
Janjira State.....	.....do.....	0	1	Total, 413 cases; 269 deaths.
Kaira District.....	.....do.....	58	46	Total, 2,069 cases; 1,578 deaths.
Kanara District.....	.....do.....	11	11	Total, 433 cases; 311 deaths.
Khandesh District.....	.....do.....	1	0	Total, 1,000 cases; 810 deaths.
Kolaba District.....	.....do.....	15	9	Total, 2,913 cases; 2,480 deaths.
Kolhapore and Southern	.....do.....	624	500	Total, 19,185 cases; 14,408 d'ths.
Mahratta Country.				
Kurrachee District.....	.....do.....	1	1	Total, 10,684 cases; 8,279 d'ths.
Nassik District.....	.....do.....	470	361	Total, 5,573 cases; 5,084 deaths.
Poona District.....	.....do.....	1,400	1,150	Total, 20,163 cases; 15,480 d'ths.
Rewa Kantha.....	.....do.....	26	25	Total, 442 cases; 341 deaths.
Rutnagherry District.....	.....do.....	18	15	Total, 742 cases; 618 deaths.
Satara District.....	.....do.....	228	177	Total, 27,067 cases; 21,211 d'ths.
Savanur State.....	.....do.....	1	1	Total, 62 cases; 38 deaths.
Sholapore District.....	.....do.....	29	28	Total, 4,912 cases; 3,960 deaths.
Surat District.....	.....do.....	61	40	Total, 7,947 cases; 5,842 deaths.
Thana District.....	.....do.....	108	86	Total, 12,366 cases; 9,794 d'ths.
				Grand total, 220,907 cases;
				164,083 deaths.
Bombay.....	May 27–Aug. 15.....		648	
Calcutta.....	May 13–Aug. 5.....		221	
Karachee.....	Aug. 6–Aug. 12.....	1	2	
Japan:				
Kanagawa Ken.....	July 1–July 10.....	2	1	
Nagasaki Ken.....	.....do.....	2		
Taiwan, Formosa.....	.....do.....	14	6	
Tamsui, Formosa.....	Apr. 1–July 23.....	1,530	1,222	Total since outbreak, 2,468 cases; 1,866 deaths.
Mauritius.....	May 4–May 31.....	1	5	
	July 14–July 20.....	30	29	
Persia:				
Bushire.....	June 8.....			Plague reported.
	May 26–June 18.....		40	
Portugal:				
Lisbon.....	Aug. 16.....			Do.
Oporto.....	Aug. 16–Aug. 27.....	51	18	
Réunion (Isle de).....	July 24.....	1	1	Do.
Russia:				
St. Petersburg.....	July 23–July 29.....	1		
	Aug. 6–Aug. 12.....	1		
Straits Settlements:				
Penang.....	Jan. 4–July 21.....	49	39	
Singapore.....	May 27–June 17.....	0	3	
Turkey:				
Bassorah.....	June 19.....	1	1	

Cholera, yellow fever, plague, and smallpox, etc.—Continued.

SMALLPOX.

Places.	Date.	Cases.	Deaths.	Remarks.
Arabia:				
Aden.....	May 1-May 31...		1	
Argentina:				
Bueno Ayres.....	Apr. 1-June 30...		2	
Austria:				
Budapest.....	June 16-June 24...	2		
	July 31-Aug. 6...	1		
Belgium:				
Antwerp.....	June 10-Aug. 26...	19	6	
Ghent.....	June 23-July 1...		1	
Brazil:				
Bahia.....	June 3-July 29...	4		
Rio de Janeiro.....	May 19-July 28...	253	178	
China:				
Hongkong.....	May 6-June 10...	2	1	
	July 12-July 24...	2		
Colombia:				
Panama.....	July 26-Aug. 1...	1	1	
Cuba:				
Cañida.....	Aug. 1-Aug. 31...		1	
Havana.....	June 30-July 6...	5	1	
Sancti Spiritu.....	June 7.....			Reported present.
Santiago.....	July 1-July 8...	1		
Egypt:				
Cairo.....	May 20-Aug. 19...		28	
England:				
Liverpool.....	June 10-June 17...		1	
London.....	June 10-Aug. 5...	5	1	
France:				
Nantes.....	June 1-June 30...	1		
Marseilles.....	June 25-July 2...	1		
Paris.....	July 2-July 8...		1	
Gibraltar.....	June 4-June 21...	1		
Greece:				
Athens.....	June 10-Sept. 2...	128	29	
India:				
Bombay.....	May 27-Aug. 15...		90	
Calcutta.....	May 13-June 10...		2	
Madras.....	May 20-July 21...		8	
Japan:				
Tamsul, Formosa.....	Apr. 1-June 30...	210	1	
Mexico:				
Chihuahua.....	July 16-Sept. 9...		18	
City of Mexico.....	June 4-Aug. 27...	79	56	
Nuevo Laredo.....	July 1-Aug. 26...		3	
Netherlands:				
Rotterdam.....	July 15-July 22...	1		
Russia:				
Khabarovsk.....	Apr. 1-Apr. 30...	1		
Moscow.....	May 27-Aug. 26...	114	50	
Odessa.....	June 10-Aug. 26...	34	11	
St. Petersburg.....	June 3-Aug. 25...	96	30	
Warsaw.....	June 3-Aug. 19...		11	
Scotland:				
Glasgow.....	June 3-June 17...	1	1	
Spain:				
Barcelona.....	Aug. 1-Aug. 31...		15	
Valencia.....	Aug. 16-Aug. 29...	4	1	
Straits Settlements:				
Singapore.....	Apr. 1-Aug. 5...		23	
Turkey:				
Beirut.....	June 27-July 1...	1		
Erzeroum.....	July 8-Aug. 12...	6		
Smyrna.....	May 27-Aug. 20...		10	
Uruguay:				
Montevideo.....	May 27-July 30...	2		

**SANITARY REPORTS FROM THE CENTRAL AMERICAN AND COLOMBIAN
FRUIT PORTS.**

COLOMBIA.

Sanitary report from Bocas del Toro.

BOCAS DEL TORO, COLOMBIA, *September 10, 1899.*

SIR: I have the honor to submit the report for the week ended Saturday, September 9, 1899. The following vessels have been inspected and cleared during the week.

September 6, steamship *Iberia*, Jakobson, 14 crew, 2 passengers, for New Orleans; September 7, steamship *Baracoa*, Wolden, 16 crew, 0 passengers, for Mobile; September 9, steamship *España*, Danielsen, 14 crew, 0 passengers, for Mobile; September 9, steamship *Yumuri*, Boe, 16 crew, 3 passengers, for Mobile. The health conditions of Bocas and vicinity continue good. In the past fortnight there has been a marked decrease in the number of cases of malarial fever. There have been no deaths during the week.

I am without any definite information regarding the situation in Limon. Such as I get through commercial channels is meager, and denies the existence of yellow fever there. A naphtha launch running in the interest of the United Fruit Company makes regular trips between the two places, carrying passengers to and fro without restriction.

Respectfully, yours,

HERMAN B. MOHR.

Acting Assistant Surgeon, U. S. M. H. S.

The SURGEON-GENERAL,
U. S. Marine-Hospital Service.

COSTA RICA.

Sanitary reports from Port Limon—A case of yellow fever.

PORT LIMON, COSTA RICA, *September 1, 1899.*

SIR: I have the honor to transmit report for the week ended August 31, 1899.

The following vessels have cleared from this port for the United States during the aforesaid week:

Date.	Name of vessel.	Master.	Number of crew.	No. of passengers.	Destination.
Aug. 25.....	Franklin.....	Rasmussen, Jr.....	14	0	New Orleans.
Aug. 26.....	Olympia.....	Lesslie.....	36	0	Newport News, Va.
Aug. 28.....	Adirondack.....	Owen.....	39	4	New York, N. Y.

I have also to report the second case of yellow fever at this port, occurring on the 29th ultimo in the private practice of Dr. Mauro Aguilar, the local port physician, who being suspicious as to the nature of a case of fever in his practice, requested a consultation, the result of which was that the case was decided to be yellow fever, the patient, wife of the chief of police of Port Limon, had until very recently

been residing in the city of Cartago, Costa Rica, which is in the interior and of high altitude.

The hospitals of the port have not had an additional case since the death on the 18th ultimo.

The reported abatement of yellow fever in the city of Alajuela, Costa Rica, seems to have been only temporary, as a reply to a telegram dated August 29, ultimo, from Dr. T. M. Calneck (of San José, Costa Rica), at present the Government medical officer at the said infected city, states that there were 7 new cases, and that there had been at least 30 cases, with 15 to 18 deaths.

Five deaths have occurred in Port Limon during the past week, and were respectively the result of acute enteritis, "convulsions," tuberculosis, a suicide, and remittent fever—all colored, with the exception of the suicide, a white male.

Respectfully, yours,

WM. H. CARSON,

Acting Assistant Surgeon, U. S. M. H. S.

The SURGEON-GENERAL,

U. S. Marine-Hospital Service.

PORT LIMON, COSTA RICA, *September 8, 1899.*

SIR: I have the honor to transmit report for the week ended Thursday, September 7, 1899.

The following vessels have cleared from this port, for the United States, during said week.

Date.	Name of vessel.	Master.	Number of crew.	Number of passengers.	Destination.
Sept. 2	Holstein.....	Jardin.....	19	0	Newport News, Va.
Do....	Phoenix.....	Sewell.....	18	0	New Orleans.
Sept. 4	Alene.....	Long.....	39	14	New York, N. Y.
Sept. 5	Citta de Genova.....	Barbiereg.....	72	14	Ponce, Porto Rico.
Sept. 7	Hispania.....	Frockberg.....	22	0	New Orleans.

I have also to report 1 death for the week, which occurred in the port on the 7th instant, that of a colored infant, the result of premature birth.

The hospitals of the port are free from suspicion as to contagious or infectious diseases, and the town proper has not had another case of yellow fever since that reported on the 1st instant.

The case referred to is doing well, and an uninterrupted convalescence is anticipated.

It may be accepted as a fact that there are no other cases of yellow fever in this port.

The number of patients in the Limon charity hospital has been reduced to 9, as the result of discharges, and of the 6 medical cases, 2 are white males, chronic malarial subjects.

The Costa Rica railway hospital has 3 patients, a white male recovering from a severe scalding by steam, also 2 negroes, 1 with a compound fracture of the astragalus, the other with subacute dysentery.

Respectfully, yours,

WM. H. CARSON,

Acting Assistant Surgeon, U. S. M. H. S.

The SURGEON-GENERAL,

U. S. Marine-Hospital Service.

GUATEMALA.

Sanitary report from Livingston.

LIVINGSTON, GUATEMALA, September 7, 1899.

SIR: There is nothing new to report as to the health conditions of this vicinity. No deaths since my last report. Only one vessel cleared for a southern port during this week, viz:

Date.	Name.	Master.	Crew.	Passengers.	Laborers.	Destination.
Sept. 7	Stillwater	Galt .....	.....	.....	.....	New Orleans via Belize.

We have also had in port during the week the German steamer, *Francisca*, and a New York steamer, *Themis*.

Respectfully, yours,

N. K. VANCE,

Acting Assistant Surgeon, U. S. M. H. S.

The SURGEON-GENERAL,

U. S. Marine-Hospital Service.

HONDURAS.

Report from La Ceiba.

LA CEIBA, HONDURAS, September 10, 1899.

SIR: I have the honor to report for the current week this port and coast contiguous, for the season, exceptionally healthy. There has been 1 death here this week, an adult male; cause, phthisis pulmonalis.

I report the following steamers inspected this week, viz, September 4, *Joe Oteri*, American, Marulo, master, New Orleans; crew, 19; no passengers. September 8, steamer *Bereifond*, Norwegian, Billesen, master, New Orleans; crew, 14, and 1 passenger.

Respectfully, yours,

WM. D. HAMILTON,

Acting Assistant Surgeon, U. S. M. H. S.

The SURGEON-GENERAL,

*U. S. Marine-Hospital Service.**Report from Puerto Cortez.*

PUERTO CORTEZ, September 6, 1899.

SIR: I have the honor to report this port exceptionally healthy. General conditions unchanged.

One death since last report; adult negro, of phthisis.

Three vessels have been inspected and certified.

Respectfully submitted,

L. A. WAILES, M. D.,

Acting Assistant Surgeon, U. S. M. H. S.

The SURGEON-GENERAL,

U. S. Marine-Hospital Service.

NICARAGUA.

Report from Bluefields.

BLUEFIELDS, NICARAGUA, September 9, 1899.

SIR: I have the honor to herewith submit my weekly report. Three vessels have been inspected and cleared since September 1. One, the

steamship *Jarl*, for Mobile, with no passengers; two, the steamship *Sumira*, no passengers, and the steamship *Fulton*, 3 passengers, for New Orleans.

The official records of Bluefields show only one death this week, an infant, of "enteric catarrh." A mild form of malarial fever seems quite prevalent, but otherwise the health conditions of Bluefields and vicinity are good.

Respectfully, yours,

D. W. GOODMAN,

Acting Assistant Surgeon, U. S. M. H. S.

The SURGEON-GENERAL,

U. S. Marine-Hospital Service.

SANITARY REPORTS FROM OTHER PORTS.

BARBADOS.

Quarantine and sanitary information.

BARBADOS, *September 2, 1899.*

SIR: My last circular report was made on the 5th, ultimo. I have now to report as follows:

Antigua.—Quarantine is in force there against Bahia, Cuba, La Guayra, Manaos, Panama, Para, Puerto Cabello, Rio de Janeiro, Santos, and Valencia.

Barbados.—The barkentine *Bonita*, which arrived here on the 28th ultimo, in 16 days from Natal (Brazil) bound on to Belize, buried a seaman on the previous day from yellow fever. Quarantine is in force here against Bahia, Panama, Para, and Rio de Janeiro.

British Guiana.—Quarantine is in force there against Brazil, Cuba, Haiti, and Panama, and arrivals from Venezuela and Calcutta are quarantined for examination by the health officer.

Cuba.—A severe outbreak of yellow fever has occurred at Santiago. There have also been cases at Havana, Manzanillo, and Matanzas.

Dominica.—No report received.

Dutch Guiana.—Her Majesty's consul there on the 20th ultimo reported the health of the colony to be good, and that quarantine is not in force against any place.

French Guiana.—No report received.

Grenada.—Quarantine is in force there against Bahia, Colon, Para, and Rio de Janeiro.

Guadeloupe.—Quarantine is in force there against Colon, Grand Bassam, and Réunion.

Jamaica.—Quarantine is in force there against Brazil, Cuba, Porto Rico, Venezuela, and the coast of Costa Rica and Panama between and inclusive of Points Carreta and Rincon. Vessels from Colon are treated as "suspect," and dealt with by the board after considering the health officer's report. Vessels having on board passengers in transit from the Pacific are only admitted to pratique if, on receipt of the health officer's report, the quarantine board is satisfied that the persons did not stop at Panama, but made the journey to Colon direct by train.

Manaos.—Her Majesty's consul there on June 14 last reported the public health to be good.

Martinique.—Quarantine is in force there against India, Egypt, Grand Bassam, and Réunion for plague, and against Brazil, Buenos Ayres, Colon, and Mexico for yellow fever.

Panama.—Her Majesty's consul there on the 10th ultimo reported

that there had been 92 cases of yellow fever to that date, of which 47 died, 43 recovered, and 2 were in hospital. The public telegram on the 29th ultimo reported that there had been up to the 23d *idem* 111 cases, of which 51 died, 48 recovered, and 12 were under treatment.

Para.—Her Majesty's consul there on 1st ultimo reported 49 deaths in July from yellow fever, and an outbreak of smallpox, with 18 deaths to 17th ultimo.

St. Lucia.—Quarantine is in force there against Bahia, Panama, Para, Pernambuco, and Rio de Janeiro.

The reports kindly forwarded by the chairman of the quarantine board give the following particulars: Bahia, for the fourteen days prior to August 21, 1 death, yellow fever; Pernambuco, for the fourteen days prior to August 25, clean bill of health; Rio de Janeiro, for the fourteen days prior to August 17, 8 cases, 2 deaths, yellow fever; 109 cases, 56 deaths, smallpox.

St. Thomas.—Quarantine is in force there against Bahia, Colon, Cuba, Panama, Para, Tampico, and Vera Cruz.

St. Vincent.—Quarantine is in force there against Bahia, Panama, Para, and Rio de Janeiro.

Trinidad.—Quarantine is not in force there against any place, except Panama.

The plague has appeared at Alexandria (Egypt), Mauritius, Réunion, French Ivory Coast, and Oporto (Portugal). A sharp lookout is being kept here for stray "ballasters" from those places.

I have the honor to be, sir, your obedient servant,

JAS. SANDERSON,
Clerk, Quarantine Board.

The SURGEON-GENERAL
United States Marine-Hospital Service.

BRAZIL.

Sanitary report from Rio.

RIO DE JANEIRO, *August 13, 1899*

SIR: I have the honor to transmit to you the official report for the week ended July 28: There were 293 deaths from all causes, an increase of 27, as compared with the preceding week; 8 deaths from *accessio pernicioso*, an increase of 5; 2 deaths from yellow fever, an increase of 2; 34 deaths from smallpox, an increase of 12; 1 death from typhoid fever, a decrease of 3; no death from diphtheria, a decrease of 2; 1 death from measles, a decrease of 2; 1 death from beriberi, the same as before, and 36 deaths from tuberculosis, a decrease of 2.

Except for smallpox, the health of the town and port is very satisfactory.

Since last report the following-named ships have been inspected and received bills of health of this office: August 3, steamship *Wordsworth*, Belgian, for New York; August 4, steamship *Taormina*, German, for New York; August 5, steamship *Germania*, British, for Galveston; August 10, steamship *Bellena*, British, for New York; August 11, bark *Saerimner*, Norwegian, for Mobile; August 12, bark *Maria Emilia*, Portuguese, for Brunswick; bark *Good News*, American, for Baltimore.

Respectfully, yours,

W. HAVELBURG,
Sanitary Inspector, U. S. M. H. S.

The SURGEON-GENERAL,
U. S. Marine-Hospital Service.

The epidemic of yellow fever in Bahia, May 7 to July 31, 1899.

CONSULATE OF THE UNITED STATES,

Bahia, Brazil, August 2, 1899.

SIR: I beg leave to inclose herewith a report on the recent epidemic of yellow fever in Bahia, and to invite the attention of the Department to the fact that the fever is no longer epidemic, there having been no new cases in residences for the past ten days.

Respectfully, yours,

H. W. FURNISS,
United States Consul.

The honorable the ASSISTANT SECRETARY OF STATE.

[Inclosure.]

Recent epidemic of yellow fever in Bahia.

On May 7, in response to public demands, the bureau of hygiene commenced to publish in the *Correio de Noticias*, the official paper, a daily report relative to the cases of yellow fever in this city. This report attempts to set forth the residence of each case, and if it is to be treated in residence, the doctor in attendance. It also gives the movement of cases at the yellow fever hospitals and the hospitals for observation. In case of any death or recovery the fact is stated, as is also stated when the premises have been disinfected.

From the published information I am enabled to compile the inclosed table, which shows the number of cases from May 7 to July 27, from which date there have been no new cases. There have been no new cases treated in residences since July 24.

I am inclined to believe that the total number of cases for the epidemic is much in excess of those given in the table, and I base this conclusion on the fact that I know of 6 cases which by intentional neglect of the doctors in attendance were never given to the bureau until the patients had recovered and disinfection was requested, and these cases never appeared in the official paper as new cases, but will doubtless be shown later on in the bureau report. For this reason any death rate that might be deducted from these figures can not help but be greatly in excess of the true conditions.

Through the courtesy of Dr. Arthus Rios, medical inspector of the port, I am also able to give the number of cases occurring in the harbor among the shipping during the same period. These cases were removed for treatment to the hospital at Bom Despacho across the bay. On April 30 there were 2 in this hospital, both of these having been taken off the English steamship *Biela* upon its arrival here from Rio. One of these was English and the other German. During the month of May, 1 Italian was taken off the French steamship *Aquitaine* upon its arrival from Rio, and 14 cases occurred aboard ships anchored in this harbor, full particulars of which are given in my special report submitted to the Department under date of May 27. Of these 14, 7 Norwegians and 1 Russian were taken from the Norwegian bark *Rigi*, which arrived here April 5 with coal from Cardiff, the first case appearing on board May 5. The Norwegian bark *Solid*, which arrived here April 25 with coal from Cardiff, contributed 4 cases, the first appearing May 20, and the Swedish bark *Gurli*, which arrived here April 4 with coal from Cardiff, contributed 6 cases, the first occurring May 22.

The total cases in Bom Despacho Hospital for the month of May were 21, of which 12 were discharged cured, 5 died, and 4 were still under treatment.

June 1 there existed 4 cases and during the month 8 others entered. One of those entering was taken from the French steamship *Chili* upon its arrival from Rio, and 5 Swedes were from the *Gurli*, mentioned above, and which finished discharging June 10, and 6 Norwegians from the *Solid*, also mentioned above, and which finished discharging June 15. The entire crews of the *Solid* and *Gurli* had the fever in spite of the fact that cases were removed as fast as they showed the least symptoms of the disease and that the boats were several times disinfected.

The total cases in Bom Despacho for June were 12, of which 3 died and 9 had recovered by June 15, from which date there have been no new cases among the shipping, and the hospital has been closed. Thus for the two months there were 29 cases with 8 deaths there, making 27.58 per cent mortality, a very low death rate considering that all treated were sailors.

During the past few weeks the cases of yellow fever have been growing less and less until now there have been no cases for several days, and the epidemic, or rather exacerbation, as yellow fever is endemic to Bahia, can be said to be entirely over, and all danger is over, other than that which always exists.

The great decrease in the number of cases is doubtless due to the recent heavy rainfall which has done much to improve the bad sanitary condition of a city without sewers, and which has had practically no rainfall for almost two years. Indeed water is now flowing through the city mains for house consumption for the first time in six months. Added to the above is also the fact that there are few without long periods of residence who have not had the fever, so that in a degree the fever can be said to have run itself out. Nearly all the foreigners who have arrived within the past two years have now had the fever, and this is particularly true of the English colony, all of whom who have arrived within that period having had it, a total of 22 cases with 10 deaths.

The native Bahian did not have the fever, except in the case of a few children of less than 10 years. Brazilians of white, black, or mixed race recently coming from the interior were very susceptible, and I know of 2 cases occurring among blacks. I can not give the statistics along this line at present, but shall furnish them as soon as the health department makes its six months' summary.

The treatment of yellow fever during the past few months has varied. The first treatment is usually given by relatives or friends who have been resident here long enough to know the symptoms of the disease, and as soon as a susceptible complains of headache, pains in back or legs, put him to bed and administer a dose of castor oil varying from 2 to 5 ounces, and then send for the doctor. Everyone recognizes the importance of prompt and early purgation, and where such a rule is followed prognosis is more favorable, and almost invariably where an attempt is made to conceal the early symptoms and catharsis is neglected, the case terminates fatally.

The doctors who claimed to have specifics had a high death rate, while those adopting expectant treatment combined with mild antiseptics were remarkably successful.

Sternberg's treatment is here looked upon with disfavor. It has been tried by a number of the doctors who have now abandoned it entirely.

The treatment which seems to have yielded the best results is that championed and used for the past five years by Dr. Frederico Castro Rebello of the Federal Medical School. During the past three months he had 29 cases with 3 deaths. Of these cases 9 were in children from 3 to 14 years of age, 7 of whom were born here, and all recovered. Of the deaths, 2 had total suppression of the urine after the second day and died in uremic convulsions, and 1 died of weak heart two days after cessation of fever. Of the recoveries, several had black vomit at some stage of the disease, and 2 cases, to my positive knowledge, had most remarkably high albuminuria.

The doctor relies a great deal upon nursing, but gives immediately after purgation by oil, a mixture of benzo-naphthol, 50 centigrams and sodium bicarbonate 50 centigrams to the dose, to be given in form most agreeable to patient every two hours. To this is sometimes added aconite when deemed necessary.

Alternating with this every two hours he gives tablespoonful doses of a solution of magnesia sulphate which corresponds to our "Dorsey's mixture." These two medicines are administered for at least two days continuously. All food is cut off for at least the same period, the time varying with the intensity of the fever and condition of the patient. Then milk mixed with vichy water or apollinaris is given at short intervals in minute amounts. Vichy water by preference. Apollinaris or other pure carbonated water is allowed all through the course of the disease in small amounts often repeated if desired. No other drinks are allowed unless upon convalescence it is thought desirable to have the stimulating effect of cold champagne. All liquids are given cold.

During the first few days of the disease and while the fever is at its height, warm enemas, 6 grams of sodium borate to 1 liter of warm sterile water, is given two or three times daily, the enema to be retained for a short time, if possible.

For pain in the kidneys, mustard plasters applied for rubefacient effect and often repeated, and in some severe cases dry cupping with scarification is resorted to.

Vomiting is controlled with small pieces of ice to be swallowed, mustard plaster over epigastrium, and carbonated waters. For black vomit ergot in some form, perchloride of iron, or some other styptic is given. Morphine is never administered.

For scanty urine or stoppage of same, mustard plasters over kidneys, wrapping in blankets to promote diaphoresis, but never pilocarpine.

For high fever, cold sponge baths, refrigerating lotions, etc., but never antipyretics, though in some cases aconite is given. Even quinine which is used so much in some localities is here relegated.

During convalescence great precautions are taken as to diet, and it is some days after cessation of the fever before solid food is allowed. Tonics of iron and strychnine are given, but all alcoholic liquors are prohibited, and particularly so if the albuminuria shows a tendency to linger as it frequently does.

I can not find that any post-mortems were made either in the known or suspected

cases. In all cases of fever albumen was looked for in the urine, and, occurring, it was taken as a pathognomonic sign of yellow fever. All fevers were treated on an expectant plan for a few days until there was no doubt as to diagnosis. During the epidemic no effort was made to study the disease in its bacteriological phase either from secretions, dejecta, or blood, nor was there any attempt made to distinguish by early microscopic examination of the blood the malarial fevers to which are attributed many deaths, some of which were doubtless of yellow fever.

Cases and deaths of yellow fever in Bahia from May 7 to July 31, 1899, inclusive.

Where treated.	May.	June.	July.	Total.
Cases in residences	82	66	27	175
Died in residences	30	38	6	74
Cases in city hospitals	90	83	22	195
Died in city hospitals	33	46	13	92
Cases in Bom Despacho	21	8	0	29
Died in Bom Despacho	5	3	0	8

Total cases in Bahia for three months, 399, with 174 deaths.

CHINA.

Plague in Hongkong in 1897 and 1898.

CONSULATE-GENERAL OF THE UNITED STATES,

Hongkong, August 5, 1899.

SIR: I have the honor to inclose copy of the Government Gazette dated July 29, 1899, containing a report on the prevalence of plague in the colony of Hongkong during the years 1897 and 1898, which I think will be found of interest. It will be noted that of the 1,320 cases reported during the year 1898, 1,298 cases occurred between the months of February and June, inclusive, which are the wet months of this colony, or, probably, more properly speaking, during the cold months, when the temperature ranges about 78 degrees. During the summer time there are hardly ever any cases of plague. It is not believed here that the 1,320 cases reported begin to represent anything like the number of cases that have actually occurred. As soon as a Chinaman finds that he is attacked with the plague, or with any other disease of any moment, he starts at once, if he is able, and if not, his relatives convey him to Chinese territory, thereby relieving the relatives of the expense of his funeral and of fumigating his premises. The Chinese object to European treatment, and to European methods. Dividing the population into Chinese and non-Chinese, it is found that the mortality among the non-Chinese attacked was 65.3 per cent. Among the Chinese, 89.6 per cent; the number of European cases being 26 for 1898, as against 16 for 1896, the first great plague year.

Respectfully, yours,

ROUNSAVELLE WILDMAN,

Consul-General.

The honorable the ASSISTANT SECRETARY OF STATE.

[Inclosure.]

Cases and deaths from bubonic plague reported during 1897.

May 21 to December 21, 21 cases, 13 deaths.

Cases and deaths from bubonic plague reported during 1898.

January, 9 cases; February, 67 cases; March, 137 cases; April, 468 cases; May, 534 cases; June, 92 cases; July, 7 cases; August, 2 cases; September, 1 case; October, 2 cases; November, 0 cases; December, 1 case. Total cases, 1,320. Total deaths, 1,175. Percentage mortality, 89.0.

A return showing (a) the number of cases of bubonic plague which have been reported as occurring in the colony of Hongkong, from January 1, 1899, to the date hereof, and (b) the number of deaths therefrom during the same period.

Number of cases reported up till noon of August 7, 1899, 1,359; number of cases reported during the past twenty-four hours, 3; total number of cases reported to date, 1,362. Number of deaths reported up till noon of August 7, 1899, 1,298; number of deaths reported during the past twenty-four hours, 3; total number of deaths recorded to date, 1,301.

JAMES A. LAWSON,
Acting General Medical Officer of Health.

[Inclosure.]

Weekly abstract.

SANITARY BOARD ROOM, *August 8, 1899.*

Week ended.	Cases.	Deaths.	Week ended.	Cases.	Deaths.
1899.			1899.		
January 1.....	1	1	May 20.....	87	70
March 4.....	5	5	May 27.....	143	134
March 11.....	6	5	June 3.....	92	97
March 18.....	6	6	June 10.....	97	91
March 25.....	3	3	June 17.....	109	117
April 1.....	7	7	June 24.....	148	138
April 8.....	19	16	July 1.....	142	144
April 15.....	10	4	July 8.....	100	98
April 22.....	31	31	July 15.....	64	65
April 29.....	28	34	July 22.....	30	32
May 6.....	64	52	July 29.....	37	39
May 13.....	89	69	August 5.....	29	29

CUBA.

Sanitary reports from Cienfuegos, Casilda, Santa Cruz, and Tunas de Zaza.

CIENFUEGOS, CUBA, *September 11, 1899.*

SIR: I have the honor to report that during the week ended September 9, 21 deaths have occurred in Cienfuegos, 5 from malaria, and 3 from intestinal diseases; no contagious diseases reported in this city.

During the week, 14 vessels were inspected on arrival, and 10 on departure.

Casilda.—Dr. A. Cantero, reports 20 deaths in Trinidad and Casilda during the week, 3 from malaria, and 1 from intestinal disease; the regular inspection of vessels is continued at this port.

Santa Cruz.—Dr. J. R. Xiques, reports 1 death in that port, but no infectious disease; 9 vessels were inspected during the week.

Tunas de Zaza.—Dr. Francisco Ravella reports that the work at this station has gone on as usual; no contagious diseases reported.

Respectfully, yours,

J. M. LINDSLEY,
Acting Assistant Surgeon, U. S. M. H. S.

The SURGEON-GENERAL,
U. S. Marine-Hospital Service.

Disinfection of Havana mail for the United States.

HAVANA, CUBA, *September 7, 1899.*

SIR: I have the honor to report that all mail matter from Havana for our southern States is disinfected.

In the absence of apparatus, this is accomplished in the following manner:

Letter mail is disinfected as it arrives at the post-office. Each letter is done separately. The corner of the envelope is cut, and 3 or 4 drops of formalin (40 per cent) are dropped in. The letters are then placed in a pouch containing formalin, and from time to time more formalin is sprinkled into the pouch. When the pouch has enough mail, it is sealed and not opened until it arrives in Tampa, which insures at least twenty-four hours' exposure. One clerk is able to disinfect all southern mail by this method as it arrives, and, therefore, it is not delayed.

Mail to northern points by way of Tampa or Miami and opened in the South by the Railway Mail Service is disinfected by sprinkling formalin in the sack and over the mail. The bundles are opened and shaken up so that the letters lie loose in the sack. These are also sealed and not opened until reaching Tampa or Miami, which gives them about twenty-four hours' exposure.

Package mail, newspapers and the like, can not be properly disinfected without apparatus, and all mail matter of this character addressed to points south of the southern boundary of Maryland is being held until we can instal and house the disinfecting cylinder.

By permission of General Brooke this cylinder will be put on the harbor front, on Caballeria Wharf, directly in front of the post-office. This situation by long repute enjoys the reputation of being the least infected point along the harbor front.

I have wired Asst. Surg. S. D. Grubbs to come here temporarily to build the plant and organize this mail disinfection. The plant will be in working order in a few days.

Respectfully, yours,

M. J. ROSENAU,

Passed Assistant Surgeon, U. S. M. H. S.

The SURGEON-GENERAL,

U. S. Marine-Hospital Service.

Sanitary report from Havana.

HAVANA, CUBA, September 10, 1899.

SIR: I have the honor to forward the usual weekly report for this port.

There has been an increase of yellow fever; a total of 24 new cases, with 3 deaths, were reported during the week; 13 of these cases were soldiers and 11 civilians; 6 of the 11 cases in civilians were Americans.

Five of the cases occurred on the water front, as follows:

(1) The electrician from the U. S. Army transport *Ingals*. He had been ashore, where he undoubtedly contracted the disease. The vessel was disinfected in the parts exposed to the infection by the *Protector* and placed in quarantine.

(2) One of the crew of the schooner lighter *Pizarro*. The man, a Spaniard, had been on the island only three months. The lighter was disinfected. The remaining crew of 2 men being immune, she was not further detained.

(3) A customs-house inspector. This man had been on the *Dawntless*, which sailed for Tampa the day he was taken sick. The quarantine officer there was notified of the facts.

(4) A sailor from the marine barracks at the machina. The barracks were disinfected by this Service, at the request of Admiral Cromwell.

(5) Another case on the *Ingals*, a Spaniard, fireman, who was taken

sick three days after he was shipped. The man had been on the island but a few months. The vessel was redisinfecting throughout and is placed incommunicado, awaiting further developments.

The disinfection of the mail is going on smoothly and without delay to the letter mail. Newspapers and packages for the South are being held, awaiting the completion of our plant, which is being rapidly pushed by Dr. Grubbs. I think it will be ready for use to-morrow.

The baggage from Havana for other Cuban ports is now required to be disinfected. As our plant here is already running its full capacity, this disinfection will be done either at Nuevitas or Cienfuegos, or at the smaller ports of entry.

Following Dr. Carter's example, I personally inspect all vessels from Spain, on account of the plague. There is no direct travel between Portugal and Cuba.

Inclosed is a table of deaths from yellow fever for the month of August during the past decade. This table indicates that the cases of yellow fever in the civilian population occurred largely in the newly arrived Spanish immigrants who ceased to come in large numbers since the war broke out.

The fewer number of cases which have occurred in our soldiers, is undoubtedly due to the intelligent care which is given them.

Respectfully, yours,

M. J. ROSENAU,

Passed Assistant Surgeon, U. S. M. H. S.

The SURGEON-GENERAL,

U. S. Marine-Hospital Service.

[Inclosure No. 1.]

Mortality report of the city of Havana for the week ended September 7, 1899.

Tuberculosis, 9; enteritis, 12; yellow fever, 3; pneumonia, 3; malaria, 8; enteric fever, 3; diphtheria, 1; pernicious fever, 2; beriberi, 1. Deaths from all causes, 121.

[Inclosure No. 2.]

Deaths from yellow fever in Havana for the month of August, 1889 to 1899.

Date.	Civilian.	Military hospital.	Total.
1889.....	47	37	84
1890.....	28	36	64
1891.....	23	44	67
1892.....	52	17	69
1893.....	82	17	99
1894.....	42	21	63
1895.....	81	37	118
1896.....	42	227	269
1897.....	9	112	121
1898.....	5	16	21
1899.....	7	3	10

Sanitary report from Matanzas, Cardenas, Ysabela de Sagua, and Caibarien.

MATANZAS, CUBA, September 7, 1899.

SIR: I have the honor to submit herewith weekly sanitary report of Matanzas and the subports in my district for the week ended September 2, 1899:

Matanzas.—Thirty deaths occurred in this city during the week, indicating a mortality of 39.16 per thousand. The principal causes of death were as follows: Malaria, 6; enteritis, 5; chronic nephritis, 3; heart disease, 3; tuberculosis, 2; dysentery, 1; infectious fever, 1; other causes, 9. The following cases of an infectious character were reported:

Dysentery, 2; measles, 1; diphtheria, 1. Two vessels were disinfected during the week; the *Miguel Jover* and the *Domingo de Larrinaga*, both bound for New Orleans; 27 vessels were inspected, 15 engaged in the coasting, and 12 in the foreign trade; to 7 of the latter, bills of health were issued; 35 pieces of baggage were inspected, passed, and sealed, and 8 pieces disinfected at the request of the military authorities; 20 health certificates were issued, 2 to passengers leaving the Island via Havana. The general sanitary condition of the city and harbor is good. The weather continues warm and comparatively dry.

Cardenas.—Acting Assistant Surgeon Saez reports 17 deaths in the city of Cardenas for the week ended September 2, 5 of which were from malarial fever. No quarantinable diseases were reported. Twenty-two vessels were inspected, 14 engaged in the coasting and 8 in the foreign trade. To 5 of the latter, bills of health were issued.

Ysabela de Sagua.—Quarantine Officer Riera reports the condition of the port as good. Eight bills of health were issued during the week, only 2 of which were to vessels engaged in the foreign trade. Seventeen deaths occurred in the municipal district of Sagua la Grande during the week ended September 2, and the following diseases of an infectious character were reported: Measles, 20; diphtheria, 1; typhoid fever, 1.

Caibarien.—Quarantine Officer Escobar reports the sanitary condition of Caibarien as excellent, only 2 deaths having occurred during the week. Twenty-two vessels were inspected, all but 2 engaged in the coasting trade. Two bills of health were issued to foreign vessels.

Respectfully, yours,

G. M. GUITÉRAS,

Passed Assistant Surgeon, U. S. M. H. S., In Command.

The SURGEON-GENERAL,

U. S. Marine-Hospital Service.

Sanitary report from Neuvas.

NUEVITAS, CUBA, *September 2, 1899.*

SIR: I have the honor to submit the following report for the week ended August 20, 1899: The drought continues unabated—the suffering from lack of water being general throughout the city. Malaria, dysentery, and whooping cough are the prevailing diseases; in fact, whooping cough is epidemic if one is to judge by the number of children afflicted with that disease that are to be seen and heard on the streets.

Six vessels arrived during the week, 6 bills of health were issued, and 1 vessel, the *Lama*, cattle boat, from Miami, Fla., was disinfected.

The acting assistant surgeon at Puerto Padre, Myari, and Gibara, and the sanitary guard at Baracoa report that the health conditions of those ports continue satisfactory.

The mortality report for this city for the week covered by this report is inclosed.

Respectfully, yours,

T. F. RICHARDSON,

Assistant Surgeon, U. S. M. H. S., In Command.

The SURGEON-GENERAL,

U. S. Marine-Hospital Service.

[Inclosure.]

NUEVITAS, CUBA, *August 26, 1899.*

One death occurred during the week ended August 26, 1899. Cause of death, consumption.

Respectfully, yours,

J. R. ANZA,

Acting Assistant Surgeon, U. S. M. H. S.

*Detention camp at Nuevitas.*NUEVITAS, CUBA, *September 3, 1899.*

SIR: I have the honor to inclose herewith the mortality statistics for this city for the week ended Saturday, September 2, 1899.

In spite of the dry weather, which has continued unbroken, the general health of Nuevitas continues good. At this writing rain is anxiously expected as an accompanier of the cyclone now reported as near the eastern end of the island.

After consultation with Capt. F. G. Cooke, U. S. A., commanding officer of Nuevitas, and with the approval (previously given) of Passed Assistant Surgeon Rosenau, I have established a detention camp upon "Cayo Puto," a small island about two miles from the city, previously used for that purpose by the army. I have secured tentage and the necessary equipment from the United States Quartermaster, have a memorandum receipt, and have placed a reliable man in charge. The capacity of the camp is at present 12. It is my intention to use this camp not only for the protection of this port against Havana and Santiago by requiring uncertified persons from those places to serve the proper period of detention, but also for the protection of the uninfected eastern end of the island against possible infection from Puerto Principe.

Respectfully, yours,

T. F. RICHARDSON,

Assistant Surgeon, U. S. M. H. S., In Command.

The SURGEON-GENERAL,

U. S. Marine-Hospital Service.

[Inclosure.]

NUEVITAS, CUBA, *September 2, 1899.*

Deaths during week ended September 2, 1899. August 28, chronic dysentery; September 2, chronic alcoholism—a remarkable case reported by Municipal Dr. Garcini, of a young girl 17 years old.

J. R. ANZA,

Acting Assistant Surgeon, U. S. M. H. S.

[Under date of September 17, Assistant Surgeon Richardson is reported ill of yellow fever.]

Sanitary reports from Santiago, Manzanillo, Daiquiri, and Guantanamo.

SANTIAGO DE CUBA, *September 5, 1899.*

SIR: I have the honor to make the following report of the sanitary condition of the fourth district of Cuba for the week ended September 2, 1899:

SANTIAGO.

During the week there was a total of 15 deaths in the civil population, a decrease of 7 from the previous week. The principal causes of death were as follows: Malarial fevers, 3; tuberculosis, 2; intestinal diseases, 3; other causes, 7. Total, 15. Population, 34,000; mortality, 22.94 per 1,000. There were 3 cases of yellow fever with no deaths, and 1 case of diphtheria.

MANZANILLO.

I visited Manzanillo during the week in order to learn exactly the conditions there and to make regulations to protect the town and protect other places from it. Manzanillo is a city of between 14,000 and 15,000

inhabitants, nicely situated on gradually rising ground that affords good surface drainage for the city. Like the most modern Cuban towns, the streets are wide, and, since the American occupation, are extremely clean. Many of the houses, especially the larger ones, were formerly used as barracks or hospitals during Spanish times, and, as there has been no systematic disinfection, are still more or less a source of danger. The building used as barracks by one battalion of the Tenth Cavalry was formerly a Spanish military hospital, and it is here that the few cases of yellow fever had their origin. I believe that with a few suggestions made the foci will soon be destroyed. There was but 1 case of fever in the town; this was from the original focus.

There were several cases of smallpox in the city, but they had been isolated.

Precautions are being taken to protect the city both from Havana and Santiago, nonimmunes not being allowed to land from these places, and all baggage must be disinfected.

During the week there were 7 deaths, the causes being as follows: Intestinal diseases, 5; tuberculosis, 1; malaria, 1. Total, 7.

DAQUIRI.

During the week there developed in the mining camp 1 case of yellow fever. The man, a Spaniard, came overland from Santiago a few days previously, and to that place the infection is traced. The man was isolated and since then no new cases have developed.

GUANTANAMO.

This place still remains free from infection notwithstanding the free communication with this city; the reason of this is no doubt due to the absolute restriction of nonimmunes, except those on Government business, and the fact that there are but few nonimmunes in the town, the troops having been removed further into the interior.

Respectfully, yours,

HERMAN B. PARKER,
Assistant Surgeon, U. S. M. H. S.

The SURGEON-GENERAL,
U. S. Marine-Hospital Service.

DENMARK.

Danish West Indies modify quarantine against Cuban and Porto Rican ports.

LEGATION OF THE UNITED STATES,
Copenhagen, August 30, 1899.

SIR: I have honor to advise you of the following quarantine orders by the government of the Danish West Indies:

On May 24 last the quarantine of fifteen days imposed on ships arriving from the Island of Cuba was modified so that ships and their crews will be admitted free on presenting a sanitary certificate from the Cuban authorities. The passengers, however, must, until further notice, submit to a quarantine of fifteen days to be passed at a lazaretto. The quarantine against ships arriving from Ponce, Porto Rico, has been replaced by sanitary inspection.

I have the honor to be, sir, your obedient servant,

LAURITZ S. SWENSON.

The honorable the SECRETARY OF STATE.

FRANCE.

*Sanitary report from Nantes.*CONSULATE OF THE UNITED STATES,
Nantes, France, August 24, 1899.

The sanitary condition of the city of Nantes has been much improved during recent years, as will be noticed by the following table. Especially is this true since the establishment of the bureau of hygiene about five years ago. During the five years previous to the establishment of the bureau the annual average number of deaths was 3,164, and the annual average number of deaths from the following contagious diseases during the same period were as follows: Typhoid fever, 77.8; smallpox, 12; measles, 39; scarlet fever, 3.6; whooping cough, 20; diphtheria, 41.6; dysentery, 2.6; puerperal affections, 8.6; erysipelas, 8.6. Total average from the above-named contagious diseases during the five years, 213.8.

The table shows the total number of deaths during each of the past four years, and also the number during the same period from contagious diseases named.

Diseases.	Years—			
	1895.	1896.	1897.	1898.
Total number of deaths.....	2,952	2,882	2,710	2,606
Typhoid fever.....	40	52	29	48
Smallpox.....	7	0	0	1
Measles.....	4	58	2	1
Scarlet fever.....	0	0	2	2
Whooping cough.....	3	10	10	13
Diphtheria.....	20	26	7	11
Dysentery.....	3	5	0	1
Puerperal fever.....	2	7	5	3
Erysipelas.....	4	13	6	7
Total.....	83	171	61	87

The average death rate per thousand from all causes during the five years previous to the establishment of the bureau of hygiene was 25.30. For the year 1897, 21.54; for the year 1898, 20.72. During the same five years the average death rate from contagious diseases was 1.70 per thousand; in 1897, 0.48, and in 1898, 0.69. In 1895 the number of deaths from tuberculosis was 593; in 1896, 564; in 1897, 518; in 1898, 496. This indicates a decrease of 97 deaths from tuberculosis in the year 1898 as compared with the year 1895. During the years 1892 and 1893 cholera appeared along the coast of Brittany, at L'Orient, and east as far as Nantes. Since then greater efforts have been made to improve the sanitary condition.

The water supply, taken from the River Loire, is very impure, and the authorities are endeavoring to obtain the supply from some other source. The city, like many others in France, has no regular system of sewerage. Nearly all the dwellings and apartment houses have cess-pools into which all the filth, liquid and solid, is drained. Many of these pools are located under the houses. These vaults are sealed up, however, and are not so offensive by any means as the open privy vault so frequent in American cities and towns. When they fill up they are cleaned out by the aid of a suction pipe, which conducts the contents into a closed wagon tank. All garbage accumulating in the streets

during the day is swept into piles the following morning and carted out of the city. Owing to the excessive number of dogs constantly running about the streets, the narrow sidewalks are often unfit for pedestrians. The lower classes among the men are immodest, if not to say indecent, when visiting the numerous urinals located at various places along the streets and near the public buildings. These are not closed buildings, but in most cases are composed of metal latticework, with a metal plate about 18 inches wide with the lower edge about 12 inches from the ground. This plate is fastened upon the front of the latticework and is intended to obstruct the view of the passers-by from the occupant of the urinal. One of these detestable places may be seen at each of the main entrances of the post-office. Here men may be seen in the urinals, and also going out and in at all times in full view of the lady patrons of the post-office. Frequently garden walls along the streets are used as urinals by this same class of men. The hot rays of the sun beaming upon these exposed places cause very offensive and dangerous odors to arise. *Le Petit Phare*, one of the leading newspapers of the city, has commenced a crusade against these places with a view to having them abolished.

JOSEPH I. BRITTAIN,
United States Consul at Nantes.

Plague precautions at Bordeaux.

CONSULATE OF THE UNITED STATES,
Bordeaux, France, August 28, 1899.

SIR: Referring to my unnumbered dispatch of August 24, 1899, in regard to the plague as a possible fact at this port, I have the honor to inform you that a meeting of the consular corps at this city was called for the 28th instant with the purpose, as stated, to consider the subject, of asking information of the prefect of this department as to the measures the French Government proposes to take and of consulting on what reports should be made to our respective governments upon this subject.

I declined to attend said conference or be bound by its action or recommendations—

(1) Because in my judgment we have no right to demand of the prefect what his government proposes to do in a contingency that may never arise.

(2) That to offer advice in such a matter would be downright impertinence. We can only assume that the prefect will do what ought to be done.

(3) Because I am responsible for what I may report to my Government, not to the consular corps. * * *

The denial that the Oporto outbreak resulted from any direct communication between that port and India is putting a new and more serious complexion on the event. If true that it came from a vessel which stopped there on its return trip from England, it is probably another evidence of the efficiency of the rat as a plague disseminator.

Should it be thought necessary for our Government to take any preventive measures, I can not too strongly recommend that among the most important of such measures may be a requirement that every exposed or suspected ship shall be fumigated with sulphur under closed hatches for a period sufficient to eradicate the last one of these rodents before granting a bill of health.

This seems to me, considering the length of the ocean voyage and the restricted period of incubation of the plague microbe, the most important feature of preventive quarantine regulations.

Respectfully, yours,

ALBION W. TOURGEE,
United States Consul.

The honorable the ASSISTANT SECRETARY OF STATE.

GREECE.

Quarantine against Egyptian ports.

DEPARTMENT OF STATE,
Washington, September 13, 1899.

SIR: By direction of the Secretary of State, I have the honor to inform you that in his dispatch No. 43 of August 23, 1899, the consul of the United States at Athens, Greece, reports the following changes in the quarantine regulations of Greece, namely:

1. All arrivals in Greek ports from ports in Egypt and the Red Sea are required to undergo a strict quarantine of eleven days, instead of twelve days as decreed June 26, 1899.

2. Any vessel from said ports of Egypt and the Red Sea that shall have undergone ten days' effective quarantine and a disinfection of the vessel and baggage of both passengers and crew in a European port, and has there communicated with the public, shall only be subjected to a strict medical examination upon its arrival in a Grecian port.

I have the honor to be, sir, your obedient servant,

ALVEY A. ADEE, *Acting Secretary.*

The honorable the SECRETARY OF THE TREASURY.

HONDURAS.

No yellow fever at Amapala.

UNITED STATES CONSULAR AGENCY,
Amapala, August 25, 1899.

SIR: I have the honor to report that there has been no case of yellow fever in my consular district and the surrounding country up to this day.

Respectfully, yours,

RUBERTHOTS,
Acting U. S. Consular Agent.

The SURGEON-GENERAL,
U. S. Marine-Hospital Service.

INDIA.

Mofussil (rural) plague statistics in the Presidency of Bombay.

The returns for the presidency for the week ended August 11 gave the following results: Kaira District, 58 cases, 46 deaths; total, 2,069 cases, 1,578 deaths. Broach District, 37 cases, 27 deaths; total, 1,530 cases, 1,146 deaths. Surat District, 61 cases, 40 deaths; total, 7,947 cases, 5,842 deaths. Thana District, 108 cases, 86 deaths; total, 12,366 cases, 9,794 deaths. Khandesh District, 1 case, no death; total, 1,000 cases, 810 deaths. Poona District, 1,400 cases, 1,151 deaths; total, 20,163 cases, 15,480 deaths. Satara District, 228 cases, 177 deaths; total, 27,087 cases, 21,211 deaths. Nassik District, 470 cases, 361 deaths; total, 6,573 cases, 5,084 deaths. Sholapore District, 29 cases, 28 deaths; total, 4,912 cases, 3,960 deaths. Ahmednugger District, 45 cases, 31 deaths; total, 1,273 cases, 956 deaths. Kolaba District, 15 cases,

9 deaths; total, 2,913 cases, 2,480 deaths. Rutnagherry District, 18 cases, 15 deaths total, 742 cases, 618 deaths. Belgaum District, 750 cases, 598 deaths; total, 29,300 cases, 22,042 deaths. Dharwar District, 143 cases, 95 deaths; total, 38,754 cases, 31,307 deaths. Bijapore District, 98 cases, 82 deaths; total, 2,626 cases, 2,130 deaths. Kanara District, 11 cases, 11 deaths; total, 433 cases, 311 deaths. Kurrachee District, 1 case, 1 death; total, 10,684 cases, 8,279 deaths. Kolhapore and Southern Mahratta Country, 624 cases, 500 deaths; total, 19,185 cases, 14,408 deaths. Janjira State, no case, 1 death; total, 413 cases, 269 deaths. Cutch State, 29 cases, 27 deaths; total, 10,447 cases, 8,634 deaths. Aundh State, 26 cases, 17 deaths; total, 1,951 cases, 1,383 deaths. Rewa Kantha, 26 cases, 25 deaths; total, 442 cases, 341 deaths. Baroda Territory, 29 cases, 19 deaths; total, 8,005 cases, 5,982 deaths. Savanur State, 1 case, 1 death; total, 62 cases, 38 deaths.

ITALY.

Weekly report from Naples.

U. S. MARINE-HOSPITAL SERVICE,

Naples, Italy, September 6, 1899.

SIR: I have the honor to report that for the week ended September 6, 1899, there were no transactions.

Respectfully, yours,

VICTOR G. HEISER,
Assistant Surgeon, U. S. M. H. S.

The SURGEON-GENERAL,
U. S. Marine-Hospital Service.

JAPAN.

*Sanitary report from Yokohama.*YOKOHAMA, JAPAN, *August 20, 1899.*

SIR: I have the honor to forward, herewith, report of infectious diseases in Japan for period July 26 to August 20, 1899. Dysentery is again severely epidemic, and, as will be observed, has extended to every portion of the Empire, with the usual percentage of mortality.

The few cases of cholera reported are of very doubtful nature, as I am convinced by some special investigation of the larger number of cases noted, those in this ken and in the city of Tokyo.

The case of plague returned from Nagasaki is 1 landed from the *Fukuoka Maru*, a steamer trading to Formosa and now in quarantine. Although no report is available as regards Formosa, it is known that plague continues more or less epidemic at several localities.

The single case of smallpox reported from this ken, that of Kanagawa, is the 1 landed at quarantine from U. S. transport *Grant*, and for which that vessel was disinfected by the Japanese authorities.

Respectfully, yours,

STUART ELDRIDGE, M. D.,
Sanitary Inspector, U. S. M. H. S.

The SURGEON-GENERAL,
U. S. Marine-Hospital Service.

[Inclosure.]

Report of infectious disease in Japan from July 26 to August 20, 1899.

Locality.	Plague.		Cholera.		Dysentery.		Smallpox.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Kioto Fu.....					291	49		
Osaka Fu.....					188	31		
Tokyo Fu.....			19	4	620	143		
Aichi Ken.....					242	49		
Akita Ken.....					14	1		
Awamori Ken.....					107	9		
Chiba Ken.....					348	94		
Fukui Ken.....					374	123		
Fukuoka Ken.....			1		150	23		
Fukushima Ken.....					2, 153	346		
Gifu Ken.....					419	98		
Gumma Ken.....					885	201		
Hogo Ken.....					342	80	1	
Hiroshima Ken.....					230	52		
Ibaraki Ken.....					570	155		
Ishikawa Ken.....					361	58		
Iwate Ken.....					579	89		
Kagawa Ken.....					228	41		
Kagoshima Ken.....					241	40		
Kanagawa Ken.....			3		706	167	a 1	
Kochi Ken.....					117	28		
Kumamoto Ken.....					433	77		
Miyagi Ken.....					192	32		
Miyazaki Ken.....					205	24		
Miye Ken.....			1		100	32		
Nagano Ken.....					1, 529	350		
Nagasaki Ken.....	a 1				200	37		
Nara Ken.....					44	16		
Niigata Ken.....					3, 519	650		
Oita Ken.....					202	41		
Okayama Ken.....					493	142		
Okinawa Ken.....					35	5		
Saga Ken.....					77	12		
Saitama Ken.....					610	186		
Shidzuoka Ken.....					568	131		
Shiga Ken.....					74	20		
Shimane Ken.....					148	21		
Tochigi Ken.....					408	67		
Tokushima Ken.....					173	34		
Tottori Ken.....					80	20		
Toyama Ken.....					80	32		
Wakayama Ken.....					104	19		
Yamagata Ken.....					126	19		
Yamaguchi Ken.....					144	25		
Yamanashi Ken.....					840	193		
Yehime Ken.....					145	34		
The Hokkaido.....					6	1		
Taiwan (Formosa) b								

a In quarantine.

b No report.

Consul at Nagasaki explains concerning the case of plague on the Nippon Maru.

DEPARTMENT OF STATE,
Washington, September 11, 1899.

SIR: Referring to this Department's letter of July 8 last, relative to a case of bubonic plague which appeared on board the Japanese steamship *Nippon Maru* while on its voyage to San Francisco, I have the honor, by direction of the Secretary of State, to inclose for your information a copy of a dispatch from the consul of the United States at Nagasaki, reporting that it was through no fault of his that the vessel was supplied with a bill of health, he having been misinformed as to the nature of the disease and the death having occurred after the vessel cleared from the port of Nagasaki.

From the statements in the dispatch it appears to this Department that the consul's explanation is both reasonable and satisfactory.

Yours, respectfully,

THOS. W. CRIDLER,
Third Assistant Secretary.

The honorable the SECRETARY OF THE TREASURY.

[Inclosure No. 1.]

CONSULATE OF THE UNITED STATES,
Nagasaki, Japan, August 8, 1899.

SIR: I have to acknowledge receipt of instruction No. 51 of the 8th ultimo, inclosing copy of a dispatch from our consul-general at Honolulu, informing the Department of what seemed to him to be an oversight on my part in my not mentioning on the supplemental bill of health, issued by me on May 26, 1899, to the Japanese vessel *Nippon Maru*, of a death on board such vessel from bubonic plague, and the subsequent detention of said vessel, which occurred near the quarantine station in Nagasaki. Of my action in the matter the Department requests an explanation.

In reply, will state that the *Nippon Maru* cleared this port on the afternoon of May 26, and took with her my clean bill of health, issued after receiving from her surgeon a certificate, which, among other things, says: "The sanitary condition of the steamship *Nippon Maru* is good, and that there is not, nor has there been during this voyage, any contagious disease on board," a copy of such certificate inclosed.

The next day I was informed that the vessel was at the quarantine station, and was to be held there seven days, by reason of a death on board. The cause of death, as reported by the quarantine authorities, was plague, and that given by the surgeon of the ship, was heart disease.

Upon investigation I found that about an hour after she sailed from Nagasaki, the death occurred. The vessel was put about and stopped, and the case reported to the quarantine officials, who ordered the quarantine.

As soon as the hour arrived at which the quarantine expired, the vessel sailed for Kobe. The agents of the ship reported to me, verbally, that she did not have communication with the shore, nor did she reenter the port.

It will be seen from the facts stated, that I could not have mentioned on the supplemental bill of health the cause of the detention.

As the *Nippon Maru* had been long delayed at this quarantine, and as I felt certain that the cause of her detention would be reported by her surgeon, inquiries made into and the cause of such detention mentioned in subsequent supplemental bills of health, at her ports of call (which seems to have been the case at Yokohama and Honolulu), I did not consider it necessary to report the matter to the Department.

Respectfully, yours,

CHARLES B. HARRIS,
Consul.

The honorable the ASSISTANT SECRETARY OF STATE.

[Inclosure No. 2.]

TOYO KISEN KAISHA,
Agency, Nagasaki, May 26, 1899.

DEAR SIR: This is to certify that the sanitary condition of the steamship *Nippon Maru* is good, and that there is not, nor has there been during this voyage, any contagious disease on board.

There disembarked at this port 5 passengers, whose baggage, as well as themselves, was inspected and found satisfactory.

Respectfully, yours,

W. B. DEAS, M. D.,
Surgeon, Toyo Kisen Kaisha Steamship *Nippon Maru*.
C. B. HARRIS, Esq., United States Consul, Nagasaki.

MEXICO.

Handling of passengers and their effects bound for the Mexico-Texas border.

CITY OF MEXICO, MEXICO, August 19, 1899.

SIR: I have the honor to make the following report concerning the handling of passengers to the Mexico-Texas border:

1. Passengers from all localities south or east of the City of Mexico are classed as "suspects" until they give satisfactory proof of a con-

tinued residence in a noninfectible locality, and of not having traveled in other than local noninfected trains from their starting point to this city.

2. Passengers who claim to be residents of the City of Mexico are not certified to until their statements are backed up with such collateral evidence as would warrant one in becoming personally responsible for them.

3. Where any uncertainty exists as to the health status of a passenger the refusal of his certificate has always been preceded by a record of his name and the circumstances, in case the proffered disinfection and the arrangement of his detention in the various noninfectible towns should be refused.

4. Lists of arrivals and departures in Mexico are kept in books by each officer here, and similar lists are forwarded each night by train porters to the inspectors at the border. Lists of passengers are forwarded from Vera Cruz, from the Marine-Hospital Service officer there, and these, with the names of passengers on the principal through trains, are listed here and forwarded to the border.

5. These lists are further supplemented by daily visits by both medical officers to the trains from Vera Cruz, during which times passengers are carefully noted for further identification should they appear at the office, as many have done, and claim residence in the City of Mexico. Not a few passengers have been "spotted" in this way, with the natural result that the impression has grown that we know a great deal more than is actually the case, and now it is extremely uncommon for a passenger to attempt to deceive us. I believe that the great majority of the passengers who appear at the border without certificates are ignorant of the existing restrictions, or else have made detours.

6. Regularly posted hours are kept at the office of the consul general from 9 a. m. to 12 m., and the passengers are certified according to the evidence presented and engagements are made for the disinfection of baggage. The afternoons are used for the further accumulation of information concerning passengers who are to leave that night.

7. The two trains leave for the United States at 7.40 p. m. and 9 p. m., respectively, and one hour before each train leaves one of the officers is at his desk in the baggage room to certify passengers or label baggage, while the other is either disinfecting baggage or having some that has been disinfected delivered to the owner from the disinfecting chamber.

8. When baggage intended for the United States is labeled, the date when it should reach the border is written on the label, together with the date of disinfection.

9. As already explained to the border inspectors, a certificate may be a means of reporting a passenger as well as certifying to him, and therefore, they should be read carefully and taken for their face value.

10. Certificates vouched for by Marine-Hospital Service men will have their initials near the consul's certificate, so that a mistake may be traced to its real source.

11. Under orders from the Surgeon-General, the principal towns have been visited and the names of reliable men secured from which to secure reliable information concerning passengers.

12. The disinfection of baggage is performed in a careful manner and in accordance with special instructions received from the Marine-Hospital Bureau. The railroad companies have especially constructed air-tight compartments at their respective depots, in which the baggage is exposed for a period of forty-eight hours.

13. There are other details in connection with the work here too numerous to mention.

Respectfully, yours,

L. E. COFER,

Assistant Surgeon U. S. M. H. S.

The SURGEON-GENERAL,

U. S. Marine-Hospital Service.

Inspection service at the City of Mexico, Monterey, and San Luis Potosi.

CITY OF MEXICO, MEXICO, September 12, 1899.

SIR: I have the honor to make my weekly report as follows: At the City of Mexico, for the week ended September 11, 94 passengers were inspected and passed. Of passengers bound for Havana and New York via Vera Cruz, 10 were inspected and passed. At Monterey, for the week ended September 9, about 50 passengers were inspected and passed. At San Luis Potosi, for the week ended September 9, 10 passengers were inspected and passed.

Respectfully, yours,

L. E. COFER,

Assistant Surgeon, U. S. M. H. S.

The SURGEON-GENERAL,

U. S. Marine-Hospital Service.

Instructions to the inspector at Monterey.

MONTREY, MEXICO, September 8, 1899.

SIR: I have this day nominated you as an inspector in the U. S. Marine-Hospital Service at Monterey, vice Temp. Act. Asst. Surg. Walter H. Vilas, U. S. Marine-Hospital Service, resigned. This nomination is subject to the approval of the Supervising Surgeon-General of the U. S. Marine-Hospital Service. You will receive a monthly compensation of \$75, and your duties will be as follows:

1. You will fill out and check with your initials certificates to passengers bound for the United States, when from the evidence submitted, you are certain that their health status is satisfactory. The certificates will then be carried to the consular officer for his signature. When there is the slightest doubt as to the status of passengers, refuse certification, offer to disinfect their baggage, and arrange their detention in non-infectible territory, and send the names of the passengers with data concerning them to the inspectors at the Mexican-Texas frontier.

2. You will transmit to the border inspectors daily lists of the hotel arrivals in Monterey.

3. You will meet the trains coming from Tampico for the purpose of identifying the passengers.

4. You will require ten days' detention and disinfection of baggage of persons coming from any locality infected with yellow fever, and any locality, such as Tampico and Victoria, having close connection with infected localities.

6. You will regard with suspicion all persons, particularly traveling men, who claim origin from points north of the City of Mexico, and who apply at the last minute for their certificate.

7. Wire to the Surgeon-General, the Mexican-Texas frontier inspectors, and the medical officer in charge of this office in the City of Mexico the suspected presence of yellow fever in Monterey, Victoria, or Tampico.

8. Endeavor to keep yourself informed as to the presence in Monterey of fevers resembling yellow fever.

9. In disinfecting baggage, first remove the contents from the trunk or container and arrange a single layer of clothes in the bottom. Sprinkle these lightly but thoroughly with formol by means of an ordinary whisk broom. Arrange another layer of clothes and sprinkle as before, and so on until the trunk is filled. Then close the trunk and pack the keyhole and crevices with wet paper, and allow the trunk to remain undisturbed in an air-tight closet at the railway depot for forty-eight hours.

10. Send a report every week to the medical officer in charge at the City of Mexico, stating the total number of passengers inspected, number passed, and number detained, with baggage disinfected.

Respectfully, yours,

L. E. COFER,
Assistant Surgeon, U. S. M. H. S.

Dr. J. M. SLABEY, care U. S. Consul-General, Monterey.

Sanitary report from Vera Cruz.

VERA CRUZ, MEXICO, September 8, 1899.

SIR: I have the honor to report the following mortality record for the past week: Yellow fever cases, 25; deaths, 12. Deaths from all causes during the previous week, 51. The total mortality for the past week will not be obtainable until to-morrow.

The health of the shipping is excellent, there being very few vessels in port, and those are in a good sanitary condition.

I have to-day issued the following order:

"*Notice.*—All baggage from Vera Cruz or other infected localities to ports in the United States, Cuba, and Porto Rico will, after this date and until further notice, be disinfected at the port of arrival. Baggage from the noninfected localities of Mexico should be inspected and labeled by a representative of the Marine-Hospital Service of the United States, or otherwise it will be disinfected at the port of arrival. All passengers for the aforesaid ports must have a health certificate from the Marine-Hospital inspector before embarking." * * *

The epidemic at Cordoba has not yet subsided, but I can not get any reliable statistics of the cases and deaths.

Respectfully, yours,

SAML. H. HODGSON,
Acting Assistant Surgeon, U. S. M. H. S.

[Telegram.]

Yellow fever at Chilpanzingo.

CITY OF MEXICO, September 14, 1899.—Yellow fever prevails at Chilpanzingo.—COFER, Assistant Surgeon.

The SURGEON-GENERAL,
U. S. Marine-Hospital Service.

NORWAY.

Quarantine against plague.

CONSULATE OF THE UNITED STATES,
Christiania, August 25, 1899.

SIR: I have the honor to send inclosed 2 copies of an official order by the Norwegian Government declaring quarantine regulations in force against the port of Oporto, in Portugal, and against all ports in China. Translation of the order follows.

Several European countries, Norway included, have sent expert medical men to Oporto for the purpose of studying the disease and its symptoms.

Respectfully, yours,

HENRY BORDEWICH,
United States Consul.

The honorable the ASSISTANT SECRETARY OF STATE.

[Inclosure.]

From the royal Norwegian justice and police department.

Under date of the 22d instant, a royal notification has been issued and reads as follows:

Notice is hereby given in connection with royal notification of February 1, 1897, and June 27, 1899, and in conformity to paragraph 2 of an act concerning quarantine of July 12, 1848, the city of Oporto, in Portugal, and the ports in China, until further orders, be considered as infected with the oriental plague, and the regulations regarding quarantine against plague are hereby ordered to be at once brought into force, with which all concerned have to comply.

This is hereby brought to public notice, and attention also directed to the fact that the above-mentioned notifications of February 1, 1897, and June 27, 1899, contain that the ports of Egypt, Arabia, Persia, India, Formosa, and the Pescadores, in Eastern Asia, as well as the Island of Mauritius, shall, until further orders, be considered as infected with the oriental plague.

We add, that quarantine for unloading can at present be conducted at the quarantine station at Odderoen, near Christiansand, only. (See paragraph 8 in act relating to quarantine of July 12, 1848, and paragraph 2 in rules for quarantine of February 10, 1849.)

EINAR LOCHEN,
L. ESMARCH.

CHRISTIANIA, August 23, 1899.

PORTUGAL.

Concerning plague.

LISBON, September 1, 1899.

SIR: I have the honor to report my arrival in Lisbon three days ago. I am making efforts to go to Oporto without having to submit to all the restrictions imposed upon those coming from that city, as they are merely annoying and of no value in preventing the spread of a disease like the plague. The total number of cases reported at Oporto up to August 31 is 51 with 23 deaths. There are, I believe, no cases in Lisbon, and the ordinary death rate is lower than at this time last year. There is a military cordon around Oporto and there is an attempt to isolate the city. People coming from points adjacent are subject to nine days' medical inspection in the towns to which they go. There are military cordons on the Spanish frontiers and all baggage is disinfected before being allowed to pass. In the case of hand baggage this is done at the time, the contents of trunks may be held several weeks. For reasons to be given later, I recommend that all ships and cargoes coming from Portuguese ports be disinfected during the existence of the epidemic at Oporto. The main export from Oporto to the United States is wine in casks, and I am informed that these casks are usually packed in boxes sometimes filled in around the cask with sawdust. The box and sawdust should be destroyed, as it is of little value, and the surfaces of the casks disinfected. There are very few passengers but their effects should be submitted to steam disinfection. A fuller report will be furnished as soon as information can be obtained.

Respectfully, yours,

FAIRFAX IRWIN,
Surgeon, U. S. M. H. S.

The SURGEON-GENERAL,
U. S. Marine-Hospital Service.

SAN SALVADOR.

No yellow fever in El Triunfo.

EL TRIUNFO, August 19, 1899.

SIR: There have been no cases of yellow fever in the district covered by this consular agency up to date.

Respectfully, yours,

E. HOFFMAN,

Acting United States Consular Agent.

The SURGEON-GENERAL,

United States Marine-Hospital Service.

TURKEY.

Sanitary report from Erzerum.

CONSULATE OF THE UNITED STATES,

Erzerum, Turkey, August 19, 1899.

SIR: I have the honor to forward a translation of a report by the chief sanitary inspector of Eastern Turkey, Dr. Jacques Jean Grosman, on the prevailing diseases of this city.

Respectfully, yours,

LEO BERGHOLZ,

Consul.

The honorable the SECRETARY OF THE TREASURY.

[Translation of a report, by the chief sanitary inspector of Eastern Turkey, Dr. Jacques Jean Grosman, on the prevailing diseases of Erzerum.]

The diseases most common to Erzerum are of a malarial nature and unusually severe during the month of April. At this time the Euphrates becomes swollen by the heavy rains and by the melting of the snow on the surrounding mountains, flooding the greater part of the plain, leaves pools of water which, becoming stagnant, breed miasma.

Before the erection of the fortifications around the city, malaria was almost unknown. The water flowing through the streets from the many fountains carried away the refuse, but, although there are several outlets through the walls, much of the accumulation of filth remains inside, polluting the air.

There are no sewers in the city; the surface water, thick with dead and decaying animal and vegetable matter, runs in gutters either in the center or on the sides of the streets and into these gutters the inhabitants throw all the refuse from the kitchen, closets, and stables and only a foot and a half below these gutters are the city pipes, made of wood, which bring the water from springs in the mountains to the fountains, from which the residents draw their water supply, and to few of the private houses. The polluted surface water, permeating these wooden pipes, renders the water impure and is the principal cause of typhoid fever, which is most common among the poorer classes who do not boil or filter their drinking water. Typhoid fever is almost epidemic in winter, the thermometer falling to 34 degrees below zero, centigrade, when the natives sleep 10 in a room with the door, windows, and cracks securely closed.

At the head of infectious diseases one must place smallpox, which, in Erzerum, is endemic. Vaccination among the native inhabitants is by the "arm-to-arm" method; that is, the virus is taken from the arm of a person suffering with the disease and inoculated into the arm of another. This mode of vaccination accounts for the many cases of syphilis met with in the young.

In the city, but more especially in the villages, scarlet fever walks arm-in-arm with measles. The cause of this is not well known, but it is, undoubtedly, due to the epidemiological conditions. To the impossibility, in this country, of isolating scarlet fever patients and of giving them the necessary medical and prophylactic care is due the rapidity with which these two diseases spread.

Gastrointestinal affections are very common among children, due to improper methods of feeding and to giving them, when too young, solid foods. The mortality among children is very great. Ten and fifteen in a family is not uncommon and if half reach puberty parents consider themselves fortunate.

There are no vital statistics kept by the authorities and no registration of births and deaths.

To tuberculosis the greatest number of deaths is attributed. Owing to the altitude, 6,200 feet, and to the long and severe winters, lasting nearly eight months, the progress of tuberculosis is very rapid.

Rheumatic maladies are general, beginning, usually, in April. Sufferers from rheumatism go in summer to Hassankala or to Ilija, the latter place but two hours from Erzerum, where there are hot baths containing potash. Wonderful cures are ascribed to these natural springs.

A serious menace to the general health of the people is the dissemination of syphilis by the practice of vaccination, already mentioned, and through sexual infection. This disease is frequently found in the tertiary period. Although prostitution is prohibited and houses of ill-fame forbidden, the law is not enforced.

In February of this year the city was visited by influenza, which was introduced from the Caucasus. Every class was attacked, but the disease was not severe.

In June the attention of the physicians and the authorities was called to a skin eruption among porters of the city engaged in carrying bags of lime. The weather being warm, these laborers worked with their necks and shoulders bare, and the rubbing of the bags and the action of the lime and the perspiration of their bodies produced an aggravated form of erysipelas, which soon rendered the men unfit for work.

A recommendation was made by the sanitary inspector to prevent the recurrence of this malady.

TURKEY.

[Report No. 226.]

Sanitary report from Constantinople—Public health in Constantinople.

CONSTANTINOPLE, August 23, 1899.

SIR: Public health in Constantinople is good. There is no epidemic to notify. There are many cases of whooping cough as well as of infectious diarrhea in children, but I do not think I could state there is an epidemic of said diseases. The number of deaths registered from the 7th to the 21st instant is 381, of which 4 are from diphtheria, 1 from measles, 10 from typhoid fever, and 11 from acute inflammation of the respiratory apparatus.

SANITARY CONDITION OF THE PROVINCES.

The official news from the provinces concerning public health is good. The official news concerning the sanitary service is not very satisfactory. At two or three consecutive sittings the superior sanitary commission has been, and is still discussing the question of the sanitary service of Bassorah. I have already reported how difficult and important is the sanitary position of said city where nearly all the sanitary physicians have failed. At last the sanitary board has appointed there Dr. Moschides, a sanitary physician whose services at Camaran in the Red Sea have been very much appreciated by the sanitary board. In fact, he is a man of science, skill, and uprightness. Unhappily on account of said latter qualities he can not stay at Bassorah where some of the steamship agents can not afford to see that the execution of quarantine regulations hinders trade and navigation. Said steamship agents have plotted against the sanitary physician. It is the British sanitary commission who communicated said fact to the sanitary commission.

The sanitary officials at Bassorah receive no aid from the authorities, and if plague which exists in the neighborhood (Buschir-Bendir Dilun) spreads in Turkey certainly that the Bassorah sanitary office must not be considered responsible. Therefore, at the last sitting of the superior sanitary commission when a strong requisitory against Dr. Moschides

from the governor of Bassorah was communicated, it was decided to forward to the Ottoman Government a report on said question by which the sanitary board complains against the governor of Bassorah, who by his behavior and support to the steamship agents paralyses the sanitary service which is brought into discredit and exposes that part of the Empire to real danger.

In my last report I laid stress on the circular announcing the decision of the superior sanitary commission concerning the diagnosis of the sanitary physicians in cases of plague, cholera, or yellow fever. I am happy to report to-day that said circular has been revoked and substituted by the one which I have the honor to forward. To the question of the Smyrna sanitary physician if horses were allowed to be embarked in Alexandria and pass through Turkey going to Russia, and if house furniture could be delivered to its proprietors at the lazaretto without being previously disinfected, the superior sanitary commission has decided to allow the passage of the horses, as well as to deliver the house furniture, without any previous disinfection.

PLAGUE EPIDEMIC IN EGYPT AND PORTUGAL.

Plague cases in Alexandria still continue to be registered. Up to the 21st instant 85 plague cases have been registered, of which 41 proved fatal. The last plague fatality was registered the 21st instant. Dr. Duca, the Ottoman sanitary representative in the International Sanitary Convention in Alexandria, reports under date 16th instant, that if plague cases are not so frequently reported it is not because said cases do not occur, but because the inhabitants hide them. A few days ago the corpse of some lady, dead from plague, was found in one of the morgues of the city. Said corpse had been abandoned there in order to prevent the segregation of the family in the lazaretto of Gabbari and the disinfection of the house. There is, Dr. Duca states, a plague focus which can not be destroyed, being unknown to the authorities.

Among the patients present at the polyclinic of the Greek hospital in Alexandria, there was one who presented two buboes on the same side, the first in the inguinal cavity, and the second in the crural one. The hospital physicians, after an exhaustive examination, have considered said case as a plague one. The sanitary inspector of the town did not agree with them, but Dr. Duca states that the hospital physician, whose duty is to attend only plague patients, has made the diagnosis of bubonic plague (*pestis ambulatoria*). The outbreak of plague at Oporto was communicated at the last sitting of the superior sanitary commission. It has been decided that ships coming from Portugal would undergo a ten days' quarantine. On said plague outbreak a discussion arose on the efficiency of the quarantine and sanitary regulations (the decisions of the sanitary conference of Venice), to which ships are subjected at Aden.

In said discussion it has been moved to convoke an extraordinary sitting of said sanitary commission for the thorough discussion of said question under a scientific point of view as well as under that of efficiency, but some of the members objected that it would not be convenient to undertake said discussion on decisions already accepted by the different governments the sanitary representatives of which sit in said superior sanitary commission.

SPIRIDION C. ZAVITZIANO,
United States Sanitary Commissioner.

The SURGEON-GENERAL,
U. S. Marine-Hospital Service.

FOREIGN STATISTICAL REPORTS.

BRITISH COLUMBIA—*Vancouver*.—Month of August, 1899. Estimated population not reported. Total number of deaths, 34. No deaths from contagious disease.

CANADA—*Quebec*.—Month of August, 1899. Estimated population, 10,760. Total number of deaths, 18. No contagious diseases.

CHILE—*Antofagasta*.—Month of July, 1899. Estimated population, 14,000. Total number of deaths, 50, including 2 from phthisis pulmonalis.

GREAT BRITAIN—*England and Wales*.—The deaths registered in 33 great towns in England and Wales during the week ended September 2, 1899, correspond to an annual rate of 25.5 a thousand of the aggregate population, which is estimated at 11,404,408. The highest rate was recorded in Preston, viz, 38.1, and the lowest in Bristol, viz, 18.5.

London.—One thousand nine hundred and thirty-one deaths were registered during the week, including measles, 34; scarlet fever, 5; diphtheria, 29; whooping cough, 31; enteric fever, 18, and diarrhea and dysentery, 368. The deaths from all causes correspond to an annual rate of 22.1 a thousand. In Greater London 2,768 deaths were registered, corresponding to an annual rate of 28.6 a thousand of the population. In the "outer ring" the deaths included 10 from diphtheria, 14 from measles, and 10 from whooping cough.

Ireland.—The average annual death rate represented by the deaths registered during the week ended September 2, 1899, in the 22 principal town districts of Ireland was 25.7 a thousand of the population, which is estimated at 1,053,188. The lowest rate was recorded in Newry, viz, 8.2, and the highest in Clonmel, viz, 73.0 a thousand. In Dublin and suburbs 205 deaths were registered, including diphtheria, 1; enteric fever, 4; measles, 14, and whooping cough, 3.

Scotland.—The deaths registered in 8 principal towns during the week ended September 2, 1899, correspond to an annual rate of 24.1 a thousand of the population, which is estimated at 1,587,414. The lowest mortality was recorded in Aberdeen, viz, 16.4, and the highest in Glasgow, viz, 26.4 a thousand. The aggregate number of deaths registered from all causes was 736, including diphtheria, 2; measles, 7; scarlet fever, 5, and whooping cough, 13.

JAMAICA.—Two weeks ended September 2, 1899. Estimated population, 694,886. Number of deaths not reported. No deaths from contagious diseases reported.

Kingston.—Month of August, 1899. Estimated population, 34,314. Total number of deaths, 115, including diphtheria, 1, and 16 from phthisis pulmonalis.

JAPAN, *Formosa*—*Tamsui*.—Month of April, 1899. Estimated population, 2,797,543. Number of deaths not reported. Number of plague deaths, 664.

Month of May, 1899. Number of plague deaths, 372.

Month of June, 1899. Number of plague deaths, 186.

MALTA.—Two weeks ended July 31, 1899. Estimated population, 180,328. Total number of deaths, 251, including diphtheria, 1; enteric fever, 2; whooping cough, 1, and 7 from Mediterranean fever.

NICARAGUA—*San Juan del Norte.*—Month of August, 1899. Estimated population, 1,156. Total number of deaths, 3. The health of the port is excellent.

SPAIN—*Valencia.*—Two weeks ended August 29, 1899. Estimated population, 143,861. Total number of deaths not reported. One death from smallpox and 5 deaths from typhus.

SWITZERLAND—Reports for the week ended August 12, 1899, from the 15 largest cities and towns having an estimated aggregate population of 670,000, show a total of 202 deaths, including diphtheria 4, whooping cough 1, and 29 from phthisis pulmonalis.

MORTALITY TABLE, FOREIGN CITIES.

Cities.	Week ended.	Estimated population.	Total deaths from all causes.	Deaths from—							
				Cholera.	Yellow fever.	Smallpox.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.
Acapulco	Sept. 2	6,000	5								
Aix la Chapelle	Aug. 2	132,780	106								
Alexandria	Aug. 20	325,000	a 153								
Do	Aug. 29	325,000	b 155								
Amherstburg	Sept. 9	2,300	1								
Amsterdam	Sept. 2	518,506	129								1
Antwerp	Aug. 26	287,462	113						3	1	1
Asuncion	Aug. 1	45,000	19								
Athens	Aug. 26	200,000			2						
Do	Sept. 2	200,000			1						
Barranquilla	Aug. 19	40,000	23	1			2				1
Do	Aug. 27	40,000					3				1
Belfast	Aug. 26	350,000	178				11	1		1	5
Do	Sept. 2	350,000	162				8			1	6
Belize	Sept. 7	13,000	4								
Bergen	Aug. 30	57,000	17								
Berlin	Aug. 19	1,818,922	886				4	2	5	12	
Birmingham	Aug. 26	514,956	300				2		3	6	5
Do	Sept. 2	514,956	281				1		1	5	1
Bluefields	do	3,018	1								
Bordeaux	July 2	286,000	92				1	1	3	1	
Do	July 9	286,000	92						1	1	
Do	July 16	286,000	74				1				
Do	July 23	286,000						1	1		
Do	July 30	286,000	116				2		2		1
Bradford	Aug. 26	231,260	109				1			2	1
Do	Sept. 2	231,260	119				1	3			1
Bremen	Aug. 26	145,000	81							1	
Breslau	do	300,000	236				2	1			1
Bristol	do	320,911	146				2	1			1
Do	Sept. 2	320,911	114				2				2
Brussels	Aug. 26	551,611	199				1	2	1	3	
Bombay	Aug. 15	821,764	c 611	1	11					11	
Budapest	Aug. 27	640,000				2		5	2		
Cairo	Aug. 19	570,062	407								
Calcutta	Aug. 5	681,560	d 451	27						2	2
Callao	Aug. 13	25,000	24								
Catania	Aug. 31	124,000	68			3					
Chemnitz	Aug. 26	172,840	110				4		1		
Chihuahua	Sept. 4	24,000	37				4	2		1	
Do	Sept. 9	24,000	37			6					
Christiania	Sept. 2	221,255	87							1	
Cologne	Aug. 26	360,311	240					2		3	
Colombo	Aug. 5	130,000	103					5			
Do	Aug. 12	130,000					1				
Colon	Sept. 3	8,000	8		1						
Copenhagen	Aug. 26	351,000	176				1	1	4		3
Crefeld	Sept. 2	108,183	52					1	2	1	
Curaçao	do	29,098	8								
Dresden	Aug. 19	396,300	204					1	1		4
Dublin	Aug. 26	349,594	207				6	2		18	1
Do	Sept. 2	391,594	205				4	1	1	14	3
Dundee	do	166,072	74								
Edinburgh	Aug. 19	298,927	101				2				2
Do	Aug. 26	298,927	109				2	1	1		
Do	Sept. 2	298,927	132				1		1	1	4
Ensenada	do	2,700	0								
Do	Sept. 8	2,700	1								
Flushing	Sept. 1	18,701	9								
Frankfort-on-the-Main	Aug. 26	253,900	80								
Funchal	Sept. 3	36,982	23						1		2
Geneva	Aug. 19	98,348	20								
Ghent	Sept. 2	162,652	84								2
Gibraltar	Aug. 27	25,900	9								
Glasgow	Aug. 26	733,903	356				8	5	12	4	
Do	Sept. 2	733,903	372				6	5	1	5	8
Gothenburg	Aug. 26	122,205	38								
Guatemala City	Aug. 30	65,000	69								
Halifax	Sept. 9	45,000	16					9			
Hamburg	Sept. 2	678,351	296				1	1	2		5
Hamilton, Bermuda	Sept. 1	15,013	0								
Do	Sept. 9	15,013	0								
Havre	Aug. 26	119,470	98								

a Plague, 1.

b Plague, 1.

c Plague, 71.

d Plague, 52.

MORTALITY TABLE, FOREIGN CITIES—Continued.

Cities.	Week ended.	Estimated population.	Total deaths from all causes.	Deaths from—							
				Cholera.	Yellow fever.	Smallpox.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.
Hongkong	Aug. 5	248,710	99					3			
Kurrachee	Aug. 12	98,195	82								
Kingston	Sept. 15	18,800	6								
Königsburg	Aug. 26	181,047						3	1		
La Paz	do	4,800	0								
Do	Sept. 2	4,800	2								
Leeds	Aug. 19	423,889	184				1	1	2	3	4
Do	Aug. 26	423,889	189				1	2	3	3	
Do	Sept. 2	423,889	162				2	2	3	1	
Leghorn	Sept. 3	104,827	39				1	1		1	
Leipsic	Aug. 26	430,635	224				2			1	
Leith	Aug. 19	77,385	32							1	
Do	Aug. 26	77,385	32							1	
Do	Sept. 2	77,385	38							1	
Liege	Aug. 26	169,867	55				3			1	
Liverpool	do	668,645	450				4	3	4	6	7
Do	Sept. 2	668,645	414				4	6	3	3	11
Livingston, Guatemala	do	1,500	0								
London	Aug. 26	6,528,434	3,008				22	10	36	57	24
Do	Sept. 2	6,528,434	2,768				22	6	39	48	41
Madras	Aug. 11	452,518	276					1		7	
Manchester	Aug. 26	546,010	346						4	10	4
Do	Sept. 2	546,010	311				3	3	1	3	1
Mannheim	Aug. 26	127,501	55				1		1	1	
Marseilles	Sept. 4	447,344	213								
Matamoras	Sept. 9	16,304	6								
Mayence	Sept. 2	80,000	27								
Mazatlan	Sept. 4	16,700	19								
Melbourne	July 29	450,000							1		
Do	Aug. 5	450,000							5		
Messina	Sept. 2	107,000	32				5				
Mexico	Aug. 20	344,377	238			3	5		1		1
Do	Aug. 27	344,377	278			3	5		1		
Milan	Sept. 2	481,297	11								
Monterey	Aug. 31	25,000	54				3				1
Moscow	Aug. 19	1,000,000	619			1		3	2	3	8
Do	Aug. 26	1,000,000	554			1	7	5	7	3	2
Munich	Aug. 19	445,000	175								2
New Castle on Tyne	Aug. 23	228,625	119				1		1	1	3
Do	Sept. 2	228,625	138				1	1	1	1	1
Nuevo Laredo	Sept. 9	6,000	2								
Odessa	Aug. 26	414,800	190			1		2	1	1	3
Paris	do	2,511,955	1,019				28	2	3	26	1
Plymouth	Sept. 2	19,848	40								
Prague	Aug. 26	190,260	89				2	2	2	1	
Puerto Cortes	Sept. 6	2,000	1								
Rio de Janeiro	July 28	768,000	293		2	34		1		1	
Rome	July 8	508,779	140								
Do	July 15	508,779	151				3				
Do	July 22	508,779	143				5	1			
Do	July 29	508,779	143				1		1		
Do	Aug. 5	508,779	138				6		1		
Do	Aug. 18	508,779	139				6				
Rotterdam	Sept. 2	315,305	139				3				
St. John, New Brunswick	Sept. 9	45,000	21						1		
St. Petersburg	Aug. 26	1,267,023	576		1		33	7	13	11	8
Sheffield	Sept. 2	362,298	202				6	1	3	8	1
Singapore	Aug. 5	97,110	151		1						
Solingen	Aug. 26	36,540	10								
Smyrna	Aug. 27	300,000	54				1				
Southampton	Aug. 26	103,168	63						1		
Do	Sept. 7	103,168	56				1				
South Shields	Aug. 23	102,312	42								
Do	Sept. 2	102,312	51								
Stettin	Aug. 26	153,000	95				1				
Stockholm	do	291,580					1		7		
Stuttgart	Aug. 31	162,934	66								
Sunderland	Aug. 26	145,613	91				2	1		3	2
Do	Sept. 2	145,613	80						1		1
Tampico	Sept. 8	14,000	19								
Trieste	Aug. 26	166,499	81				1	3	1		
Tuxpan	Sept. 4	11,000	28		2						
Vera Cruz	Sept. 7	25,000	50		12						

a Plague, 29.

b Plague, 2.

MORTALITY TABLE, FOREIGN CITIES—Continued.

Cities.	Week ended.	Estimated population.	Total deaths from all causes.	Deaths from—						
				Cholera.	Yellow fever.	Smallpox.	Typhus fever.	Enteric fever.	Scarlet fever.	Whooping cough.
Utilla.....	Sept. 2....	800	0	.....	.....	.....	.....	.....	.....	.....
Do.....	Sept. 9....	800	0	.....	.....	.....	.....	.....	.....	.....
Venice.....	Aug. 26....	172,266	69	.....	.....	.....	.....	1	.....	1
Warsaw.....	Aug. 19....	601,408	375	.....	.....	3	1	10	5	13
Do.....	Aug. 26....	601,408	381	.....	.....	.....	1	8	2	10
Windsor.....	Sept. 9....	4,000	1	.....	.....	.....	.....	.....	.....	.....
Zurich.....	Aug. 26....	164,425	43	.....	.....	.....	1	.....	.....	1

By authority of the Secretary of the Treasury :

WALTER WYMAN,
Surgeon-General U. S. Marine-Hospital Service.